MEDICAL JOURNAL OF AUSTRALIA.

Vol. I. SYDNEY : SEPTEMBER 12, 1914. No. 11.

British Association for the Advancement of Science.

ZOOLOGY SECTION.

(By our Special Correspondent.)

Tuesday, August 25, 1914.

Australian Trematodes and Cestodes.

Dr. S. J. Johnston, B.A., D.Sc., read the following paper, as a preliminary contribution to the zoo geography of Australian trematodes and cestodes:—

In this paper the autochthonous Trematodes and Cestodes alone are discussed, those parasitic in domesticated and introduced animals being left out of account, as they have no bearing on the matter in question. No attempt is made to give any account of the distribution of this parasite fauna within Australia, or to draw any conclusions from this, for the information at hand in this regard is very meagre, most of the worms having been recorded from one locality only, or from a very circumscribed district. But rather an attempt has been made to discover the nearest relatives of the Australian forms and their distribution, and to find what may be learned from this.

Trematodes of Mammals.

A survey of the trematodes parasitic in Australian mammals discloses only three species from eutherian mammals, and these all from the dugong (Halicore dugong), namely, Opisthotrema cochleare from the tympanic cavity, Opisthotrema pulmonale from the lungs, and Rhabdipœus from the intestine. The first of these has also been recorded from an American manatee. From the marsupials and monotremes, apart from Fasciola hepatica, which seems to have become naturalized as a parasite in a number of marsupials, more especially various species of Macropus, only four species are known, namely, Mehlisia ornithorhynchi from the platypus, Ornithorhynchus anatinus, and Mehlisia acuminata from Dasyurus viverrinus, and two species of Harmostomum, one from Dasyurus, the other from Perameles. The first two are very similar forms, which do not show a close relationship to other known trematodes, but in the scheme of classification lie somewhere between the Fasciolinæ parasitic in the higher mammals and the Echinostominae parasitic mostly in birds. Amongst the comparatively numerous species of Harmostomum, most of which are found in birds, our two species mentioned find their nearest relatives in two species, parasitic in two species of Didelphys in South America. They are so closely related that they must be considered as derived from common ancestors, and they thus present strong circumstantial evidence of the phylogenetic connection of their hosts.

Indeed, the occurrence of these species of Harmostomum in various species of Australian and South American marsupials, and the occurrence of the same species of Opisthotrema in both the Australian dugong and its fellow Sirenian, the South American manatee, form two very strong links in the biological chain of evidence of the former connection of these two regions through Antarctica.

Cestodes of Marsupials.

These conclusions are further supported by the Cestode parasites of marsupials. Two species of Linstowia, a genus of Cestodes with pretty close affiities to the Anoplocephalinæ, the one, L. echidnæ, found in the spiny anteater, Tachyglossus aculeata; the other, L. semoni, found in a bandycoot, parameles obesula, are nearly related to two species of the same genus found in marsupials in South America, L. iheringi, from Peramys americana and L. brasiliensis from Didelphys tristriata. Leaving out of account as unrecognisable a number of tapeworms, described in the early days of Krefft, we find ten other species described from Australian marsupials, nine of which belong to the sub-family Anoplocephalinæ, viz., four species of Bertiella, three of Moniezia, and one each of Cittotænia and Triplotænia, while Bancroftiella tenuis, T. H. Johnston, from Macropus ualabatus is the only armed tapeworm known from Australian marsupials.

Two South America forms, Oochoristica didelphidis and O. bivittata, both from Didelphys murina, may represent Bancroftiella in America, but they do not typically belong to marsupials, having been described first as parasites of lizards, which act as hosts for them in Europe, Africa, and America. In addition to this, species of Oochoristica are found in American monkeys, edentates and marsupials, as well as in a carnivore in Europe.

Cestodes from Birds.

About 45 cestodes are known from Australian birds, but they may be passed over for the present, because, in the first place, no definite account of the relationships of many of these worms is available at present; and secondly, the subject is fraught with much difficulty, owing to the unrestricted way in which various cestode genera seem to be able to affect so wide a range of vertebrate hosts (e.g., Oochoristica in monkeys, edentates, carnivores, insectivores and marsupials, as well as in European, African and American lizards; Moniezia in ungulates, rodents, marsupials and three orders of birds, and Hymenolepsis in bats, insectivores, rodents, and fifteen orders of birds).

But mention may be made of the very interesting fact that the same tapeworm, Davainea struthionis is found in both the African ostrich and the American rhea, while a closely related form, D. australis, is found in the emu, Dromæus novæ-hollandiæ.

Trematodes of Birds.

The relationships of the trematodes of Australian birds, however, is on the whole, very clear, and their distribution, both in regard to their hosts and geographically, for the most part, very interesting.

Of this recorded species of Echinostoma, one, E. revolutum, occurs in Australia as a parasite of Anas superciliosa, and also occurs in Europe in Anas boschas, and a number of other Anseriformes. E. australasianum, which occurs in our large crane, Antigone, finds its nearest relative in E. sarsinum parasitic in the European Grus grus, while E. elongatum from Podargus strigoides comes close to E. uncatum, found in certain species of Cratophaga. The echinostomid Patagifer bilobus, which was described as a parasite of Platalea leucorodia in Europe, has also been recorded for the closely-related birds, Platalea regia and Plegadis falcinellus in Australia. Lepoderma nisbetii and Prosthogonimus vitellatus, two trematodes parasitic in passeriform birds in Australia, are related to L. cirratum and P. cuneatus respectively, both parasitic in passeriform birds in Europe.

Among the Monostomidæ, Typhlocoelum reticulare, from the Australian pied goose, Anseranas semipalmatus, is closely related to T. cucumerinum, occurring in the European Anas fulgula and other species of the same genus, whilst Allopyge antigones, found in the great Australian crane, Antigone australasiana, comes very near A. ominosus and A. adolphi, both of which are parasitic in the European crane, Grus grus.

That remarkable trematode, Scaphanocephalus expansus, which is a parasite of the sea eagle, Pandion haliætus, is very similar indeed to a species of the same genus found living in the intestine of an Australian sea eagle, Haliætus leucogaster. Closely related species of Bilharziella and of Lyperosomum are found respectively in old-world and Australian species of Larus and in Laniidæ.

The Holostomidæ are represented in Australia by three species of Holostomum, three of Hemistomum and two of Strigea. Holostomum hillii, from Larus novæ-hollandiæ, is a near relative of H. erraticum parasitic, in various species of Larus and other birds belonging to the Lariformes in Europe; H. simplex, from Ardea novæ-hollandiæ, is nearest to H. cornu, found in various old-world species of Ardea,

whilst H. musculosum, from Sterna bergii, finds its nearest relative perhaps in H. bursigerum, found in several of the Lariformes. The European Hemistomum spathula, in various members of the Strigiformes, is represented in Australia by Hemistomum triangularo and Hem. brachyurum, found respectively in Dacelo gigas and Ninox maculata, whilst Strigea promiscua, found in two species of Ninox, in Queensland, comes near to Strigea gracilis, which occurs in certain species of Anseriformes in Europe.

Hemistomum intermedium parasitic in the Australian black swan, Chenopis atrata, seems to have no near relative.

Apart from the chelonians, very few trematode or cestode parasites, have been described from Australian reptiles, so that I propose to omit any mention of them for the present.

Cestodes from Amphibia.

The amphibia seem to be remarkably free from cestode parasites, for up to the end of the nineteenth century only one adult cestodes was known from this class of host, viz., Nematotænia dispar, which has been recorded from Rana temporaria, Bufo vulgaris, B. viridis, Pelobates and Hyla arborea. But closely related forms have recently been described from other amphibia, Ichthyotænia schultzei from Rana adspersa in South Africa, Ophiotænia filaroides from Amblystoma, and O. lonnbergii from Necturus in America, and Ophiotænia from Hyla aurea in Australia.

Larval tapeworms, Sparganum or Ligula, occur both in Australia and European frogs.

Trematodes of Amphibia.

But the trematodes differ from the cestodes widely in regard to their success in parasitising amphibia, for the frogs and toads present an abundant trematode fauna, which invade all parts of their alimentary tract and its offshoots.

The three European species of Pneumonœces found parasitic in the lungs of frogs are represented in Australia by one species of the same genus, in America by six species and in Asia by one. The single species of Halipegus, found in the buccal cavity of frogs in Europe is represented in Asia and America by one species each, but up to the present no representative of this species has been found in Australia. The European Opisthioglyphe, parasitic in the intestine, is represented in America by one species of Glypthelmens and in Australia by three species of Dolichosaccus and two species of Brachysaccus, the latter usually occurring in the rectum, but also found in the small intestine. Four species of Mesocœlium parasitic in the intestine of Australian frogs correspond very closely to one species of Mesocœlum in Asia, and one each of Brachycœlium in Europe and America. Also found in the intestine are seven species of the sub-family Pleurogenetinæ, belonging to the genera Pleurogenes, Prosotocus and Brandesia in European frogs; one species of Loxogenes in America and two species each of Pleurogenes in Asia and Australia.

The single species of Diplodiscus occurring in the rectum of European frogs is represented in America by one species of the same genus, and in Australia by two.

The members of the sub-family gorgoderinæ which occur in the bladder of frogs are represented in Europe by fine species of Gorgodera and Gorgoderina, in America by five species of the same genera, and in Australia by one of Gorgodera.

The heterocotylean Polystomum integerrimum occurring in the bladder of European frogs is represented in Australia by one species and in America by two, but the last, however, are parasitic not in frogs, but in Chelonians.

All the Asiatic species referred to are parasitic in frogs that occur in the Indo-Malayan region.

The trematodes or the cestodes parasitic in any given class of host may be separated into two groups, one in which the members have near relatives in the same class of host found distributed in other zoogeographical regions, another in which the members have no such relatives. The latter, which in some cases may have no members, e.g., in the case of the parasites of the frogs, may represent recent acquirements. The members of the former group represent very old parasites of their hosts. Looking on all the the related forms in one class of host, e.g., the pleurogenetines of frogs, as a stock derived from common ancestors, these ancestors must have become parasites of the ancestors of those hosts, in times far past, when the latter group of animals was in a very much more primitive and homogeneous state than we find it to-day, and when its distribution was very different, and very much more restricted. As this primitive group of animals became dispersed over various parts of the earth's surface the parasites were carried with them; but owing to the conditions under which their life is passed, cut off to a large extent from the shaping influences of changes of environment and, perhaps, to some extent, owing to a certain want of plasticity through their being a much older group of animals the parasites have become altered in their morphological structure much less than their hosts have. Thus we find in the case of the Sirenia that, while the hosts have diverged to the extent shown by the differences of the dugong and the manatee, the parasite Opisthotrema has not been affected even to the extent of specific differences: and again in the case of the Ratitæ, while the hosts have become so different as the ostrich, the rhea and the emu, the Davainea parasitic in them has only developed slight specific differences in the case of the form living in the emu.

Worm Parasites in Tropical Queensland.

Dr. W. Nicoll (Townsville), in his remarks on the worm parasites of Tropical Queensland, said: The study of worm parasites has made considerable advance throughout Australia during the past five years. Previous to 1909 comparatively little was known with regard to them. Although a few desultory papers had appeared no Australian worker had made any extended investigations on the subject. It must not be forgotten, however, that a few years earlier J. P. Hill had made a considerable collection of worm parasites from native animals, but his interest in them yielded to more alluring subjects, so that many of them remain undescribed, or have been described by other authors. The researches of Krefft and of Bancroft, in Queensland, must also be remembered. They were practically the pioneers of systematic helminthology in Australia, though unfortunately their work has little permanent value.

T. H. Johnston and Georgina Sweet made the first real advances. S. J. Johnston and J. B. Cleland have also made valuable additions to our knowledge.

The foundation of the Australian Institute of Tropical Medicine in 1910 provided an opportunity for the study of these parasites in tropical Queensland. This was taken advantage of by Breinl, and the extended investigation which he then commenced has been continued during the past four years, with the result that a large and representative collection of worm parasites has been gathered together. These include forms from all classes of vertebrates, but birds, being most readily procurable, have received probably the greatest share of attention.

Systematic work on this collection was undertaken by T. H. Johnston, S. J. Johnston, Breinl, and myself, and already eight reports have been published. These deal with a large number of species, most of which are new, and many of considerable morphological interest.

This paper is not intended to be a catalogue of the worm parasites occurring in North Queensland, but will consist merely of a few scattered remarks which it is hoped will stimulate some interest in the subject.

Compared with the conditions in other tropical countries, worm infection in human beings in tropical Queensland is relatively infrequent. This is undoubtedly due, in great part, to the absence of a large native population. Probably the most common human parasites in North Queensland are the hook-worms (Ankylostoma duodenale and Necator americanus), both of which abound in certain coastal districts, and are responsible for a large amount of sickness, especially amongst children. The common thread-worm (Oxyuris vermicularis) is fairly widely distributed, while the whip-worm (Trichuris trichiura and Strongyloides stercoralis) are not infrequently met with. The ordinary round-worm (Ascares lumbricoides) appears to be quite uncommon. Filaria bancrofti is one of the most frequent human parasites in this region.

Tapeworms are not at all common, and of the few cases which have been met with some have certainly been imported, Hitherto only Taeniarhynchus saginatus has been met with. Hydatid disease is also uncommon compared with its frequency in other parts of Australia. No flukes have as yet been recorded.

The parasites of the domesticated animals and stock have not hitherto received much attention, and in consequence our knowledge of them is scanty. In the dog the most characteristic parasites are Dirofilaria immitis and Ankylostoma caninum. The former affects the heart, and is the apparent cause of a considerable amount of mortality. Ascarids are not uncommon, while the most frequent tapeworm is Dipylidium caninum. The last-mentioned species is probably the most common parasite in cats here.

The parasites of horses, cattle, sheep and goats have not been much investigated, the only parasite to receive much attention being Onchocerca gibsoni, the cause of worm nodules in cattle, which is so widespread throughout Queensland.

With regard to other mammals, rats have naturally been most frequently examined. Their parasites do not differ from those occurring in rats in other parts of the world, but the characteristic feature here is the frequency of Gigantorhynchus moniliformis.

Of the marsupials, several grey and red wallabies have been examined. Their stomachs are frequently found crowded with two hitherto unidentified species of Nematodes.

Amongst the few parasites which have been collected here from the common opossum (Trichosurus vulpecula) is Filaria trichosuri, from the body cavity. Intestinal parasites do not appear to be common in this animal.

Only one parasite, a tapeworm (Cittotaenia tachyglossi) has yet been described from the echidna in this locality, but a second undescribed species of the same genus has been found, while an interesting small nematode occurs not infrequently. It is a little red worm which attaches itself firmly to the wall of the intestine, and assumes a characteristic spiral form which is extremely difficult to unwind. Unlike most nematodes, when treated with hot alcohol, this form does not straighten out but retains its coiled shape. It is somewhat remarkable that this worm bears a close resemblance to other similar species occurring in the flying-fox (Ptuopus gouldii), the carpet snake and a few other reptiles.

Not the least interesting of the mammalian parasites is the trematode (Rhabdiopoeus taylori), described by S. J. Johnston from the dugong. It presents an entirely new and highly characteristic type of structure.

Turning now to a consideration of the parasites of birds, we find a very large number and variety. When we consider, however, that a considerable proportion of Australian birds are migratory, and are widely distributed throughout Europe and Asia, it is not surprising to find that their parasites do not differ greatly from those occurring in Europe. It thus happens that the bird parasites do not present any very distinctively Australian characteristics. In 1910, T. H. Johnson gave a good summary of the worm parasites of Australian birds, and since then he has added numerous records, chiefly of tapeworms, to the list. Several of these were collected in North Queensland, but none of them seem sufficiently remarkable to call for comment. As is usualy the case, the hymenolepid family is by far the most strongly represented.

Several flukes have been recorded from birds by S. J. Johnston and myself, the most interesting of which are a new monostome from the native companion, and two new liver flukes from the stone-curlew and white ibis. Of the bird trematode-fauna the chief characteristic is the prevalence of echinostomes and holostomes, of which numerous varieties occur, closely allied to their European congeners.

With regard to the nematode parasites of Australian birds we possess little exact knowledge, and there are only a few scattered records relating to North Queensland birds. The best known forms are Oxyspirura parvovum (the eye-worm), Heterakis papillosa, and H. perspicillum, all of which are common here in chickens. Breinl has described a second eye-worm from Leach's Kingfisher. Other eye-worms have been met with in the wedge-tailed eagle and the brown hawk. The bulk of the nematodes collected from birds here belong to the families Ascaridæ and Filariidæ, and do not appear to possess any outstanding peculiarities.

The parasites of reptiles and frogs present a much more typical aspect, and several interesting new forms have been discovered in North Queensland. Amongst these may be mentioned two interesting new flukes, which have been described from the intestine of the carpet snake and freshwater turtle respectively. Several other new types have been collected from various reptiles, but still remain undescribed.

Of adult tape worms infecting reptiles only two have been recorded here, namely, Acanthotænia tidswelli and Bothridium pythonis. Species of larval sparganum are, however, extremely common in the subcutaneous and peritoneal tissues of monitors and various snakes. In some cases the infection with these parasites is so heavy that an almost continuous layer of tapeworm is formed, extending over the greater part of the body and into the limbs.

The nematode fauna of reptiles is interesting, and presents considerable variety, but it does not appear to differ essentially from that occurring throughout the rest of Australia. The most interesting nematode perhaps, which is common here, is that described by Breinl from the lungs of the blue-tongued lizard (Tiliqua scincoides).

It is amongst the fishes that we find the most remarkable and distinctive parasite fauna, and it is chiefly in regard to the intestinal flukes that the great profusion occurs. Tapeworms, in teleostean fishes at least, are very common, but the nematode parasites present one or two features of interest.

S. J. Johnston has already reported the occurrence of two new forms (Petalodistomum) from the stingray, while I have collected new and unusual types from the toad-fishes, the black bream, the grunter, the pilot fish and several others. Each of these presents features which are quite unlike those of any already known fish parasite.

Of nematodes the usual crowd of indeterminable larval forms occurs in the body cavity of numerous fishes. A more characteristic and unusual feature is the presence of large filariæ in the body cavity of such fishes as toad-fishes, kingfish, eels and a number of others. These parasites often grow to large dimensions, and are usually turned around the genital glands. A moderate number of echinorhynchs have been collected, and of these the most remarkable is a comparatively enormous species from the swim-bladder of a black bream.

Onchocerca Gibsoni.

In speaking of the migration of the larvæ of Onchocerca gibsoni through the capsule of the worm nodule in cattle, Dr. W. Nicoll (Townsville) pointed out that while the morphology of the nematode, Onchocerca gibsoni, had been fairly exhaustively investigated, its mode and place of entrance into the host, its migration and the migration of its larvæ were still uncertain. Johnston had come to the conclusion that the most likely transmitting agents were mosquitoes, true lice or a cattle fly (Musca sp.). Cleland had made the discovery of the infection of calves born and bred on Milson Island, Hawkesbury River, with onchocerca. The mothers were not infected. He was able to show that the infection was not water-borne. He attached importance to Stomoxys calcitrans as the probable vector. Gilrutt and Sweet had arrived at negative conclusions. Breinl showed that the larvæ could make their escape from the worm nodule, and by piercing the skin of their host find their way to the exterior. In his latest paper, Cleland had brought forward fresh evidence in favour of the Stomoxys calcitrans theory. He suggested that the formation of nodules was an accident in the life-history of the worm and the larvæ were produced while the worm was free. Dr. Nicoll recounted a series of experiments undertaken by himself. Two moderately infected cows were used. In each, several palpable nodules were present. In spite of all the precautions taken the larvæ did not appear to penetrate the intact skin, when in contact with water. The results of his experiments did not in any way

disprove Breinl's results, but they demonstrated that the larvæ do not pass through the skin on the application of water alone. He further excised nodules from the carcases of cattle slaughtered at the meatworks. The larvæ made their exodus through the nodule capsule in some cases into water. This process was not notably favoured by an increase of temperature, and was actually retarded by the addition of acid or ammonia to the water. Further experiments of this nature proved that the larvæ were always present in the capsule of the nodules, and were constantly migrating through it in greater or lesser numbers. He came to the conclusion that water at room temperature caused the larvæ to escape from the capsule, and stimulated others to migrate from the interior of the nodule. In all the experiments an attempt was made to keep the larvæ alive as long as possible. In the most successful instances they had remained alive for only 17 hours.

In summing up his own experience and that of other observers, he stated that water-borne infection, either direct or through an intermediary host, must be regarded as a possibility. Against this theory were two important facts. The first was that the larvæ were not adapted to independent existence in water, and the second was that their life in that medium did not exceed a period of two days. He was of opinion that insect-borne infection was more probable. This was supported by Leiper, who argued on purely morphological grounds, by analogy to the filaria. On the other hand, the oncherca were more closely related, as far as habitat was concerned, to the guinea-worm, which infection was water-borne. No one save de Does had discovered onchocerca larvæ in the blood. The suggestion that the larvæ might circulate in the blood before the fibrous capsule was formed, or that they might be present only in the blood of young cattle, did not appeal to him as tenable.

Antarctica.

A discussion on the past and present relations of antarctica in their biological, geographical and geological aspects was held on August 25. The members of the Sections of Geology, Zoology, Geography and Botany took part. In opening the discussion, Sir Douglas Mawson (S.A.) stated that they were chiefly concerned with the aspects of the problem relating to geography. He was inclined to the opinion that were the ice to be melted, the great continent of the southern extremity of the world would appear as several, and not as one, units of land. A large piece of land probably existed in the Ross Sea, reaching to the Weddel Sea, and it was probable that this land was split up into a number of smaller fields. The majority of the antarctic expeditions had explored the regions south of New Zealand, and had aimed at the discovery of the Pole. Since the Pole had been reached, it might be anticipated that future expeditions would be undertaken for the purpose of obtaining information of purely scientific value and interest. The portion of land which had been explored by British expeditions rose to great heights, and Amundsen had found mountains up to 19,000 feet near the Pole. Up to three years ago, when he sailed south, practically nothing was known of that region. After making a brief reference to the work of the German and Swedish expeditions of 1901, and of the Scottish expedition, he gave an interesting description of the experiences of his own expedition. About 90° east of Greenwich there was a portion of the antarctic continent, of which practically nothing was known. It was sighted by a whaler in 1820. There was a big depression in this situation. To the south a continent extending to about five million square miles existed, the land was covered by ice, and in a very few situations rock actually showed through. Speaking of the land south of Australia, he stated that the base of his expedition was situated in Macquarie Island. About 1100 miles due west they had their western antarctic base under the charge of Mr. Wild. Much difficulty had been experienced in determining the presence of land in this area. The charting done by the Wilkes's expedition was full of errors. He expressed the opinion that Knox Land actually did exist. Directly inland from the main base station, there was a plateau, and beyond that was the spot where Professor David and he met with the Shackleton expedition. The son proceeded to describe in detail the geography of Adelie Land. From the western base the party sledged to Gausberg, where the ice-sheet extended into the ocean for about 180 miles. There were some doubts as to whether any solid land existed under this sheet. Sir Douglas Mawson proceeded to describe in detail the geograpy of Adelie Land. In speaking of the islands in this neighbourhood, he stated that some were eaten out underneath, and presented a remarkable formation closely resembling a mushroom. The glacier ice presented a tumbled and broken appearance, and was quite impassable in places. The Denman glacier was about 20 miles wide. In some of the glaciers there was a continual booming like the fire of artillery, and the ice could be felt trembling. Coal was found in this neighbourhood. In conclusion he dealt with the theory of the formation of a large moat-like excavation of the ocean floor south of Tasmania, and also with the subject of the metereological conditions and fauna of the antarctic regions.

Mr. Taylor (Syd.) dealt with the question of glacier erosion from the point of view of the geologist. With the aid of a model he demonstrated the geological formation of a range of mountains which extend for about 1000 miles from the Pole to Cape Adare. The highest peak was Mount Lister. The great ice plateau was situated at levels reaching 5,000 and 7,000 feet above the level of the sea. He pointed out the peculiar "arm-chair" valleys which had eaten away the edges of the great scarp. The Hinterland was about 1,500 miles wide, and was carved out by extraordinary "finger" valleys, so called because of their resemblance to the impression which would be made by the knuckles if the hand were pushed into a mass of putty. Some of the glaciers terminate 20 miles from the sea, leaving the valley dry and free from snow, but without any vegetation. He suggested that most of the islands had been covered by ice quite recently. Their rounded tops were evidence of erosion. He objected to the term "nunatak" being applied to this formation, and suggested in its place the term "nunacolla." He demonstrated the amount of rock exposed and the area in which the moving glacier exercised its action on it. In turning his attention to the erosions in the district about 78° south, he explained that the great precipitous crags which reached 5,000 feet high had been subjected to a certain amount of glacial erosion. A considerable amount of water was found flowing, and this water carried away the products of the erosion. The erosion itself was due to the alternating freezing and thawing. On the other hand, he showed that in the Ferrar glacier, where there was practically no pressure on the sides of the walls, there was no erosion. In describing the erosion of the cwm glacier he likened it to palimpsest, i.e., the old Greek manuscripts on which, underneath the script, some record of earlier writing was faintly impressed. The glaciers forming near the top of the plateau dimmed but did not obliterate the earlier erosions.

Professor David (Sydney) did not think that Mr. Taylor's cwm theory should be pressed too far. There was evidence, however, in the Beacon sandstone of cross faulting. The Beardmore and the Mackay glacier valleys were, in his opinion, regions of cross faulting and downward slipping. Turning to the great ice barrier, he was of opinion that it was formed of fan-like, flattened-out ribs of glacier ice derived from the contributing glacier valleys on the south-east and south-west. The uneven thickness, and the absence of a cliff face led him to take this view.

In regard to the question as to whether antarctica had always been situated at the South Pole, he stated that Archæocyathinæ have been found in limestone blocks. These organisms had not been found in the warmer continents. A large form of pecten apparently dominated all other forms of animal organisms. The floor of the Ross Sea was, he thought, quite white with sponge spicules. He referred to the occurrence of a curious mineral called glendonite, which is always associated with glacier erractics; this was found in the upper marine permocarboniferous rock. This mineral was a pseudomorphus glauberite; a double sulphate of sodium and calcium. The presence of glendonites in the southern hemisphere was of the utmost importance for the proper understanding of the

past distribution of animals and plants. He added a few words on the meterological conditions of antarctica.

Professor Penckh (Berlin) was of opinion that future explorations would ascertain how the eastern part of antarctica, and the western part were joined together. They both contained deposits of the mesozoic age. Along the Beardmore glacier there was no trace of mountain making by folding since the palæzoic age.

Mr. Ferrar (Giza, Egypt) described what Mr. Taylor termed "finger valleys," as the remnants of glaciers which had once been their origin on the great scarp, and which had pushed themselves across the transverse valley into the McMurdo Sound. The signs of escarpment facing west were now visible.

Mr. Stillwell pointed out that a small rock promontory in Adelie Land had been examined, and had been shown to have been uncovered within about 100 years. There was distinct evidence of a slight elevation in that part during geologically recent times. From a study of the rock he had come to a conclusion that the ice was retreating at the sea level, whereas 1,100 miles west of Adelie Land it was advancing. In other parts the conditions seemed variable.

Captain Davis (Captain of the Aurora) spoke of the value of deep-sea soundings with the sounding machine. He had spent two years learning how to use this machine, and was now convinced that by its aid it was possible to locate land within a distance of 100 miles. He indicated the mistakes made by the Wilkes' expedition in regard to the location of Termination Land. Wilkes should get the credit for having discovered this land, which he believed was a huge ice tongue stretching out like a big breakwater, and extending for 30 miles northwards.

Mr. Rudmore Brown (Sheffield) expressed himself in favour of the theory of two land masses in Antarctica. The discovery of the Ross Sea by Scott and Amundsen supported this view. He thought it probable that land was situated on the Weddel Sea side. It was very difficult to form an opinion as to the reality of what was known as Morrall Land or New South Queensland. He thought that much geographical information would be obtained in the near future in regard to the areas and formation of Coates Land and Leopold Land. No one had yet landed on the former, and some doubt had been expressed as to whether it was an ice-covered cape jutting out from the continent or not. He himself was convinced that it was a plateau of land of perhaps 10,000 to 15,000 feet in height.

Dr. Simpson (Simla) essayed to explain the fact that the southern hemisphere was much colder than the northern hemisphere. The temperature of any area was determined by the amount of radiation of heat from an object which was heated by the sun's rays. In the northern hemisphere the sun was able to transmit heat directly to land, which stored it up. The absorbed heat was gradually radiated into the atmosphere. In the case of the southern hemisphere, the whole surface was covered with ice, which was practically a reflector. Ice was incapable of storing up heat for the purpose of radiating it gradually into the atmosphere. The warmth of the sun's rays was, therefore, lost when they impinged on the five million square miles of southern ice.

Mr. Hedley (Sydney) explained from the biological point of view how antarctica had become a lifeless waste. He called attention to the fact that the marsupials were confined to Australia and America. The carnivorous marsupials were now confined to Tasmania. There were fossil bones of these animals in the extreme south of South America. He also called attention to the cystignathid frogs which had their chief seat in South America, but were also found in Australia. Since these animals could not have arisen separately in the two continents they must have found a path between the two. This path, Mr. Hedley was able to show, was across Antarctica. Traces of both vertebrate and invertebrate animals were found on the south polar continent. He felt justified in assuming that these animals did not merely migrate through Antarctica, but lived and thrived there for several generations. This implied that the land was habitable, and that it extended in various directions.

Although New Zealand formed an asylum for Antarctic refugees, it was curious that these cystignatid frogs were not found there. In a similar manner the path of the fuschsia was traced. Nearly all the fuschsias were natives of South America. There were four stragglers in New Zealand, but none in Tasmania. It thus appeared that when the path for the migration of plants and animals to Tasmania was open the path to New Zealand was closed, and the reverse. In regard to whether the Antarctic continent was single or multiple, he pointed out that among the antarctic refugees were both frigid and sub-tropical forms. He suggested that there was a great central plateau where the cold country alpine things flourished. On the coast at a lower level than the plateau the warm animals and plants, which were now to be found in New Zealand and Australia, and which were derived from South America, had their habitat. As the cold grew more intense, the animals and plants were driven down from the heights to the coast, and the living things on the coast crossed over to warmer regions. In this way Antarctica became waste. There was, therefore, in or before the miocene age, a warm period; and about that time there were various promontories jutting north, and connecting the southern with the mainland continents. As the cooling process took place, the different animals and plants took advantage of the land left them to reach the places in which they were now found.

Professor Seward (Cambridge) spoke of the leaf impressions and fossil trees of Antarctica. He was able to demonstrate the impression of the glossopteris. Among the fossil trees was one which was obviously a conifer. Gangamoperis had also been discovered.

The discussion was closed by Professor Bateson (London), who restricted himself to the subject of the indurance manifested by the members of Sir Douglas Mawson's and Scott's expeditions.

Heredity of Some Emotional Traits.

Mr. Davenport read a paper on the "Heredity of some Moral Traits." He stated that his data were obtained by investigating chiefly the moral characteristics of the parents and relations of girls in certain institutions in the United States of America. Among the moral traits investigated were liability to violent outbursts of temper, tendency to suicide, depression of spirits, uncontrolled erotic emotions, and others. The method consisted in ascertaining by means of trained investigators known in such enquiries as field workers, how far the parents or grandparents, and other family relations, exhibited the same definite traits as were evident in the patients. In some cases, that is to say, in relation to some traits the evidence was indistinct or contradictory, but in relation to the traits mentioned above, a definite heredity was proved in a large number of cases. The details of the evidence had been fully published, and the results showed that moral traits were as definitely hereditary as physical. Moreover, they were in many instances shown to be inherited in the Mendelian manner, some being dominant and others recessive.

The Habits of the Sheep Maggot Fly.

Dr. Walter W. Froggatt, F.L.S. (Government Entomologist, Sydney), said: The establishment of the Sheep Maggot Fly Experiment Station by the Minister of Agriculture last September marks a very important stage in the development of Economic Entomology in Australasia.

A scheme of action had been previously drawn up by a Committee consisting of the Chief Inspector of Stock, the Wool Expert, and the speaker, which was approved by the Under-Secretary, and has since been carried out under my supervision. This has eventuated in the formation of the present Government Experiment Station at the Crutching Yards, about six miles from Messrs. W. and T. Dickson's homestead of Yarrawin Station, and it is largely owing to the assistance and co-operation of these gentlemen that so much investigation work has already been done.

The district of Brewarrina was chosen on account of its being one of the north-western areas in which the sheep maggot flies have been a very serious pest for some years. The camp outfit consists of four large tents, one of which is fitted up as a laboratory for chemical and entomological

investigation. As it was considered that the bio-chemical side of the question, in working against the sheep maggot, was very important, Mr. J. L. Froggatt, B.Sc., of the Sydney University (a son of the speaker), was appointed by the Public Service Board as officer in charge, and has submitted two interim reports up to the end of the year 1913.

In the first records of sheep maggot flies in Australia this species (Calliphora rufifacies), which, for want of a better name, has been called the "Metallic Blue Blow-fly," was not one of those known as an active agent in the work of blowing soiled wool on living sheep. It was not among those recognised as sheep flies in the paper, "The Sheep Maggot Fly, with notes on other Common Flies," published in the "Agricultural Gazette" for January, 1915, and as late as 1910, when another contribution, "Sheep Maggot Fly in the West," was published, the committee had not bred this species from maggots in soiled wool, though in the west it was very plentiful about killing-yards, freshly-skinned sheep, and dead animals.

The publication of the notes in 1910 brought much interesting information and material from sheep-owners, and it was found from the infested wool thus received that the so-called "hairy maggots," well known to the squatters, were the larvæ of this fly, and that it also bred in soiled wool. But at that date they were not as common as the two other species of yellow house blow-flies, Calliphora oceanicæ and C. villosa, which up to this date had been the chief culprits.

This is another case of the adoption of new habits by a previously harmless insect, on account of new conditions arising, through the presence of smelly wool. From the present investigations in the north and western districts of this State, and Western Queensland, it is evident that this is now the common sheep maggot fly, while the two other species, from which it probably first acquired the habit, have almost disappeared from this great area, and, at the time of writing, certainly do very little damage in comparison with this species.

In fact, many of the so-called "smooth maggots," typical of the domestic yellow blow-flies, recently discovered, are the larvæ of another metallic-tinted blue-green fly, belonging to the distinct genus Lucilia, and identical with the sheep maggot fly of England (Lucilia sericata). This is one of our common introduced "green bottle flies," a common meat-blowing pest about Sydney and suburbs, but in earlier investigations it had never been noted in the west or north-west, though now well established.

The "Metallic Blue Blow-fly" or "Hairy Maggot Fly" (Calliphora rufifacies) is about one-third of an inch in length, but varies considerably in size, as starved specimens are often much smaller. In general coloration it is a deep metallic blue, but sometimes shading into green tints on the abdomen; the legs are black, the wings transparent, with the basal cells close to the thorax clouded, and the nervures black. The space between the eyes is black, with the rest of the head dull yellow, but clothed with a fine white down. The bristles covering the head, thorax, and abdomen are black, with very few upon the dorsal surface of the thorax, the under surface of the fly clothed with finer downy hairs, which form a grey coat on the thorax and first segment of the abdomen.

The maggot is dull light brown to dirty white; the dorsal surface darkest on account of the numbers of minute black spines that form regular black bands across the cephalic and thoracic segments, with all the following abdominal ones covered with patches of similar spines, formnig almost a tuft at the top of the anal segment. The whole of the epidermis is finely shagreened, the ventral surface rugose, with the number of minute black spines forming irregular transverse bands across the centre of the segments. Head comparatively small, contracted behind; black, recurved jaws, moderate in size. Thoracic segments narrow at junction with head, second and third swelling out to the abdominal ones; segments well defined on the sides, broadest to the fourth abdominal, rounded to the anal segment. Along the edge of the front margin of each segment from behind the head a transverse band of long, blunt, fleshy tubercules, smallest on the thoracic segments, and rounded. The abdominal segments furnished with eight larger, longer tubercules, with a corresponding row of eight smaller ones on the ventral surface. Spiracles distinct in the centre of a depression on the eighth segment. Adult maggot measuring about five-eighths of an inch in length. It is the curious fringe of fleshy tubercules that give these larvæ the popular name of "hairy maggots."

The pupa varies from dark brown to almost black, and in general form is flattened, but slightly convex on either side, with the aborted tubercules forming an irregular coat of roughened processes or blunt spines. They are often found sticking to the damaged wool, and though some may remain on a damaged fleece on a blown sheep after they have pupated, the bulk of them fall to the ground in the same manner as with those of other species. When dead animals are found in the paddocks, large quantities of the pupæ may be found under and around the edge of the carcase, but in small animals such as rabbits, and birds, they generally pupate well under the soil beneath the remains upon which they have developed.

The Green Bottle Fly (Lucilia sericata).

This is the well-known English sheep maggot fly. It was probably introduced into Australia at a very early date, and is very common about Sydney and the suburbs, where these bright coloured flies are very noticeable resting on the ground feasting upon any offal or decaying vegetable or animal matter.

It also comes into the house at times and blows meat, and seems to have a very keen sense of smell for any kind of tainted food.

At first sight it might easily be confounded with Calliphora rufifacies, but on comparison with this species it will be found that the colour has a more distinct green tint, while the spines or stiff hairs are much more abundant all over the thorax and body, particularly on the back and pronotum. There are no fine downy hairs on face or body, and there is usually a pale whitish bloom on the front margin of the prothorax, behind the head, that is never seen upon the hairy maggot fly.

The maggots are smooth and cylindrical, without the fleshy tubercules, and closely resemble the larvæ of the two common yellow house blow-flies. White, sometimes semi-transparent, elongate, with pointed head containing the black curved retractile jaws, and the anal end bearing some short, rounded tubercules and the pair of spiracles.

The pupa is smooth, of the usual oval shape, and dark brown tint. The life history has been closely observed from the eggs of specimens blowing exposed meat in Sydney. Eggs laid at midday were active maggots in six hours, the maggots on meat are full fed in six days, when they pupate and the perfect fly emerges on the sixth day after the maggot has pupated.

This species is the sheep maggot fly of Great Britain, and has been a pest chiefly in Ireland and Scotland from a very early date, but has never been recorded from the wool or wounds on sheep until now. At the Yarrawin camp it was identified coming to meat baits, and later on was found in our breeding jars emerging from wool containing smooth maggots taken from a badly blown ram.

We have, therefore, another species of blow-fly that is taking a hand in blowing soiled wool.

Parasites.

The discovery of an effective parasite infesting the larvæ and pupæ of the sheep maggot fly (Calliphora rufifacies) is a very important event in the work of the Government Sheep Fly Experiment Station at Yarrawin, and one that may possibly lead to new methods of control. In this case we have a native parasite attacking another indigenous inseet under natural conditions and surroundings, when the pest is in an early stage of its development and has done no damage to the wool. There is no question in this case of going to a foreign land to collect an unknown parasite, travel by land and sea to its new home, and turn it out in a strange land where it has to fight against new enemies; we have it well established right among its food supplies.

The infested fly pupæ were collected under the remains of a dead foal that had died in the paddock just five weeks previously, so that allowing that the eggs were deposited

on the day of its death, the whole life cycle of the chalcid parasite would be comprehended in four weeks, as the perfect chalcids were ready to emerge when the pupæ were collected, but it has now been proved that their life cycle is still shorter. The dates are as follows:—The foal died about 8th October; the remains were examined by us on the 19th November, when the remains were still putrid where resting on the soil, but the sheep maggot flies had emerged from all the pupa cases that had not been destroyed by the parasites. The remaining ones contained the remains of dead sheep flies, or the maggots, pupæ and the perfect chalcid wasps just emerging. The two lots of fly pupæ can be easily separated, as those from which the flies have emerged have the end of the pupa case torn off, whereas those from which the parasites emerge have a small circular hole like a pin prick in the side of the pupa case, but the ends are intact.

Parasitised fly pupæ examined on the 20th November contained an average of 20 pupæ, larvæ or perfect parasites, active and ready to emerge when the pupa case was broken. Large quantities of the parasitised pupæ brought down to the Entomological Laboratory at Sydney were found to be swarming with these active little wasps, which had emerged in the tins on the journey from the Government Experiment Station at Yarrawin. These parasites were removed into clear circular lamp glass chimneys, plugged with cotton wool at both ends, and fed with sugared water placed on a bit of linen rag on the inside of the glass cylinders. A quantity of pupæ of our common blow-flies (Calliphora villosa and C. oceaniœ), which had been bred from blown meat for the purpose in the laboratory, were placed in the bottom of the glass cylinder, which was left on its side for observation. The work of copulation went on for about two days before the female chalcids, which are much larger than the males, commenced to actively deposit their eggs in the fly pupæ provided for them.

Mr. McCarthy, who had charge of this very interesting work, considers that most of these fly pupæ were parasitised from the 7th to the 11th December, and the first of the second generation began to appear in the jar on the 18th of December, and were swarming out in hundreds on the 22nd December, so that the second generation, under close observation, took about 11 days to develop from the egg to the perfect wasp.

Another important point in the breeding of these parasites is that they increase enormously under artificial breeding conditions, the freshly-bred pupæ of the house blow-flies being much more heavily parasitised than the "hairy maggot" pupæ from which the first generation was obtained.

The pupæ parasitised under artificial conditions can be easily distinguished from those that have not been infested, for wherever the pupa case is punctured by the needle-like point of the ovipositor a tiny drop of white matter exudes, and leaves a distinct spot on the brown pupal shell.

The egg of this parasite has not yet been examined, but the tiny naked dirty white larvæ are legless maggots of typical form, short and thickened in the centre, and smaller at the extremities. The pupæ are enfolded in a fine, close-fitting skin, showing all the outlines of the future perfect chalcid.

The perfect chalcid wasp is just one-twelfth (1/12) of an inch in length; general colour dull metallic green, with rich metallic bronze and green tints in certain lights about the head and thorax; the antennæ springing out in front of head; the basal joints dull yellow to reddish, the last ten joints brown and covered with fine hairs, so that they look as if they were ribbed; eyes large, reddish-brown; head, large; thorax, medium; legs covered with fine hairs, light yellow; wings transparent, covered with fine scattered hairs; nervures brown; body almost stalked at junction with meta-thorax, broadly rounded in centre, coming to a point behind. Most sheep men to whom these parasites have been shown say they look like tiny winged ants. They belong to the same order of insects, but are quite a distinct family.

Echinoderm Larvæ.

In relating the results of his studies on the echinoderm larvæ, Dr. Th. Mortensen (Copenhagen) said that he had been engaged in following out this problem with a view of determining the inter-relation between the larval forms and the grown forms. The knowledge hitherto gained tended to show that within the different families of echinoderms, the larvæ had certain structural features in common. Should this prove to be a general rule, it would be possible to draw conclusions from the structure of the larvæ as to the natural position of the grown forms, and thus the study of the larvæ might be of considerable importance in investigating doubtful cases for the purpose of classification. During a three months' visit to the Biological Station at Misaki, Japan, sixteen different forms of echinoderms were reared more or less completely. It was found that the larvæ of Strongylocentrotus ("Sphæreclidius") pulcherrium and Toxocidaris ("Strongylocentrotus") tuberculatus were in complete accordance with the speaker's view, expressed in his previous communications, as to the true relationship of these two forms. No larva had yet been described of the Temnopleurids. The speaker had succeeded in rearing three different forms, viz., Temnopleurus toreumaticus, Pleurechinus sp., and Mesphilia globulus. These larvæ seemed to demonstrate that the family of the Temnopleuridæ had a special form of larva, characterized by certain peculiaritis in the structure of the larval skeleton. He had further been successful in rearing a spatangoid, Brissus agassosi; the larva was, as might have been expected, of the usual spatangoid type. Four species of clypeastroids had also been reared, namely, Clypeaster japonicus, Mellita sp., Laganum fudsiyama and Laganum decagonale. The structure of all these forms was in accordance with that of the known larvæ of the clyteastroids. He pointed out that special interest attached to the two Laganum larvæ. Laganum fudsiyama was a deep-water echinoderm. This was the first instance of a deep-water form having been reared artificially. The larvæ was pelagic, and of the typical clypeastroid structure. Laganum decagonale had large eggs, which were rich in yolk. In connecquence, the development was shortened, the whole metamorphosis being completed in the course of 3 or 4 days. The larvæ took no food, the mouth being rudimentary. There was no vibratile cord, but there was strong ciliation. The larval skeletons were rudimentary, but coincided in type with the skeletons of the other clypeastroid larvæ. Not more than four larval processes were developed; as a rule there were only two; but at times there was one, three or none at all. No Ophiurans or Holothurians were reared, but he had succeeded with Asteroids, viz., Asterias calamaria, Astropectus scoparius, Astropectus polyacanthus and Asterina pectinifera. Of these forms, he dealt with the last named only. It was the first species of the genus which had been found to have pelagic larvæ. In the case of the other two species, the development of which were known, there were non-pelagic larvæ. He mentioned the fact that the larvæ of Ast. pectinifera had a braciolarian stage. This proved that the larval appendages in the young Ast. gibbosa were homologous to brachiolarian processes in free swimming larvæ.

Reports.

Among the reports presented to the Section of Zoology was one on "the occupation of a table at the Zoological station at Naples," and another on the "Investigations carried out at the Belmullet Whaling station." The former consists of a preliminary report by the Hon. Mary E. Palk on the Pycnogonida, and a few lines from Mrs. Pixell-Goodrich, announcing a full paper on the development and sporogony of Lithocystis and Urospori or Echinocardium and Gonospora of Glycera siphonostoma. The committee drew attention to the advisability of zoologists and physiologists applying for the use of the table, and point out that the expense of travelling to Naples from England, and of living there, is comparatively small. In the report on the work carried out at the whaling station, Dr. J. Erik Hamilton gives a full and interesting account of the anatomy, physiology, parasitology and natural history of the whales secured. Of the external parasites found, Penella

and Coronula diadema appear to be the most common. Dealing with the internal parasite. the only trematode found in the intestines of the finner whales were Monostomun plicatum. Nematodes were found in larger quantities in the stomach of practically every sperm whale examined. These worms belonged to the genus Ascaris.

In addition, Strongylidæ were found in the renal vein, in the vena cava and elsewhere on a few occasions. A digitate form of tumour containing the nematode eggs occurred in blue whales and also in a humpback The pathological structure, and the chemical composition of these growths is described in detail. In other cases the growths are described as being of "enclosed" structure. Acanthocephali were found. in every species, save B borealis. Cysticerci of various cestodes were found embedded in the blubber of a sperm whale. The information given in regard to the gestation of whale and to the size, habits and appearance of whale fœtuses is unfortunately brief. The young whale, when born, appears to be about 20 feet in length. On the basis of the 10 months' gestation, it is suggested that a fœtus of two months would measure about 4 feet, and of 5 months about 9 feet. The report concludes with a tabular statement of the various measurements of the whales.

A post-graduate course will be begun on September 28th, in the Medical Clinic of l'Hôtel Dieu, under the auspices of the University of Paris. The course consists of morning and afternoon lectures, and lasts for a fortnight. The lecturers are Professor Maurice Villaret, Dr. Dumont, Dr. Herscher, Dr. Benard, Dr. Chabrol, Dr. Lippmann, Dr. Paul Descomps, Dr. Deval, Dr. Pierret, Dr. Grivot, Dr. Guilleminot, Dr. Dausset, Dr. Durey, and Dr. Jomier. The subjects of the lectures include affections of the liver, general bacteriology, diagnosis of tuberculosis, hæmatology, cardiac diseases, syphilis, radiology, various neurological subjects, etc. The lectures will be illustrated by lantern slides, cinematrographic pictures, and microscopical preparations and demonstrations on patients, pathological specimens and instruments will be held. Individual instruction will be given in the examination of patients, the manipulation with instruments, etc., and in laboratory work. Qualified medical practitioners, as well as students who have passed their matriculation at any University, are admitted to the course. The fee is 100 francs. All communications concerning this course should be addressed to Dr. Deval, Chef de Laboratoire, Hôtel Dieu, Paris.

The Knox Home at West Temaki, New Zealand, was opened on August 20. A wink of the new home is to be used as a convalescent home for wounded and sick soldiers.

The Knox Home stands in about 38 acres of ground at a distance of 8 miles from the city. The erection of the building has been carried out at a cost of some £20,000. In the centre there is the administrative block of two stories. The main entrance is formed by a portico, supported by Doric columns, and the verandah extends on both sides in front of the wings. There is a large waiting-hall, out of which run spacious corridors. The quarters for the medical staff and the matron are situated on either side of the hall, and for the nursing staff on the upper floor of the central block. The kitchen and laundry are placed at the rear of the building. There are two wards for male, and one for female patients. The dining-rooms and the sitting-rooms are spacious and well equipped.

Among those present at the opening ceremony were Dr. W. H. Parkes, President of the New Zealand Branch of the British Medical Association, and Dr. C. E. Maguire, Medical Superintendent of the Auckland District Hospital.

Hospitals.

MILES DISTRICT HOSPITAL, QUEENSLAND.

The first annual meeting of the Miles District Hospital Board was held on July 25, 1914. During the year 151 in-patients and 1,026 out-patients were treated. Six deaths had occurred. The balance-sheet revealed a satisfactory financial condition.

HOBART HOSPITAL.

At a meetin gof the Hobart Hospital Board on 24th Aug., a report was submitted of an interview of representatives of the Friendly Societies of Tasmania and the Chief Secretary. In this report it was stated that the Hobart Hospital authorities charged a fee of 10s for issuing medical certificates required in case of sick members. No such charges are made, but it has been ascertained that the junior house surgeon, having been applied to for medical certificates by ex-patients of the hospital, received a fee of half a guinea for such certificates. It was suggested that if a printed form were presented by lodge members during the course of their treatment, it would be signed by the resident surgeon without any fee. Dr. Sprott was of opinion that the house sugreon should not be required to give certificates for nothing. It must be remembered that patients would have to pay for certificates if they went to doctors outside the hospital.

During the month 244 patients were treated in the hospital; 141 were discharged and 8 died; 79 new cases were treated as out-patients, and 22 in the casualty department.

LADY LAMMINGTON HOSPITAL FOR WOMEN, BRISBANE.

In the 14th Annual Report of the Lady Lammington Hospital for Women, Brisbane, which was presented to the Annual Meeting on the 23rd July, it is stated that an open-air ward with eight beds, and new quarters for the Resident Medical Officer were completed in November, 1913. Lady MacGregor performed the opening ceremony of the new ward. A fumigating chamber had been added to the Hospital equipment during the year, and the Committee announces that electric light will be installed at an early date.

Two-hundred-and-ninety-eight (298) patients were admitted into the Hospital during the year. Four patients died, two of malignant disease; 364 operations were performed, and 1,100 out-patients attended for treatment.

From the balance-sheet it is seen that the receipts include subscriptions to the extent of £340; patients' payments amounting to £466, and a subsidy of £879, out of a total of £2,111. It is pointed out in the report that the maximum charge is £1 1s. per week, but that a considerable amount of the work is carried out gratuitously.

CHILDREN'S HOSPITAL, PERTH, WESTERN AUSTRALIA.

Our attention has been directed to a dispute which has arisen between the Board of Directors and the nursing staff of the Children's Hospital in Perth. It appears that a nurse reported to the matron that she had seen through a frosted glass window the resident Medical Officer kissing another nurse. The Matron reported the occurrence to the Board of Directors, who cross-examined the Medical Officer and the nurses, and came to the conclusion that the former had behaved indiscretely in standing in such a position as to give the impression of having kissed a nurse, but that he had not actually done so. The resident Medical Officer and the nurse implicated denied the allegation, and maintained that their relations were strictly professional. The Board thereupon reprimanded the Medical Officer for his indiscretion. The nurses, headed by the Matron, were not satisfied, and threatened to leave the institute if the Medical Officer were not immediately discharged. The Board did not see its way to alter its decision, and the Matron, with all the nurses save nine, carried out their threat, and left the hospital. The Board succeeded in obtaining untrained substitutes in the place of the "nurses on strike." The action of the nurses was approved of by the Perth Nursing Association, and a resolution was passed that the Children's Hospital would not be recognised as a training school for nurses until such time as the management proved itself to be satisfactory.

Medical Journal of Australia.

SATURDAY, SEPTEMBER 12, 1914.

Factory Hygiene in Western Australia.

The acquisition of wealth at the expense of the health and working capacity of the employed has long been recognized as an economically unsound proposition. In spite, however, of this recognition, persons still exist who take advantage of the shortcomings and defects of factory laws to increase their profits by limiting the expenditure on proper building and sanitation and by circumventing the regulations governing the conditions of labour. In the majority of the States a fairly severe penalty acts as an efficient deterrent.

In Western Australia, the Factory Act, which has been in force since 1904, has some striking defects. The Chief Inspector, in his annual report, calls attention to one in particular. The provisions of the Act do not obtain in respect of premises in which less than six persons are employed, unless machinery is used for the purpose of supplying power, or the persons employed are Asiatic. In some cases, employers refrain from employing six persons or more in order that the provisions of the Act should not be enforced. But even when a smaller number of persons is employed without any ulterior motive, the conditions are frequently far from satisfactory, and compare unfavourably with those obtaining in larger factories. Another serious defect of the Western Australian Act is that no minimum wage is prescribed. The Inspector quotes instances of girls of 18 years of age and more being in receipt of 10 shillings a week, after they have become proficient in the work and have served for several years. Novices are paid as little at 2/6 a week, and at times are not paid at all. An Amending Bill was introduced into the Assembly last session, but did not become law. It is anticipated, however, that within a short time the law will be so amended that the conditions in the State will correspond to those in other States.

Other points, however, require the attention of the legislator, and should be dealt with at the same time. In the first place, under the present law, supervision is required of 1091 factories. This number will be greatly increased when the definition of a factory is extended to include all places where persons are employed for the purpose of producing merchandise. The supervision is carried out by four male inspectors and one lady inspector. The duties of these officers include, in addition, the whole of the inspection work under the Early Closing Act and Employment Brokers Act, the investigation of disputes and the adjustment and enforcing of awards under the Industrial Arbitration Act, and, lastly, the task of enquiring into the causes of strikes and lock-outs, and of bringing about settlements in trade disputes. Such work can only be satisfactorily carried out if an adequate amount of time for its performance be allowed, and if the inspectors have facilities for following up the many side issues which arise in the course of their duties. We learn that the five inspectors made 2927 inspections during the year. In 839 instances defects were discovered and orders were issued, either by the inspectors themselves or the local health authority. The defects were all of a serious nature. Defective sanitary arrangements were the most common, and dirty premises the next. In three-quarters of the cases the cause of complaint lay in a want of ordinary cleanliness or in the dirty or neglected condition of the sanitary conveniences. The causes obtaining in the second group of complaints include insufficient ventilation, inadequate illumination, failure to remove fumes and dust, and excessive temperature in the work rooms. The causes acting in the third group had their origin in the conditions of employment. The necessity of issuing 839 orders in a State in which there are only 1091 factories points to a serious failure of the legislative remedy. Even if the orders requiring the keeping of statutory records, the desisting of the illegal employment of women and children and of children under 14 years of age, the desisting of the employment of Asiatics after statutory hours, and the like, be left out of consideration, there still remains the necessity for the remedying of serious hygienic defects in 669 instances. It was not found necessary to prosecute in any instance for non-compliance with any order issued in connexion with the sanitation of factories. If after 9 years' operation of the Act, three-quarters of the factories are found to be dirty

to the point of endangering the health of the workers, there is no doubt that the issuing of orders has failed in its purpose. To require employers to "clean up" once or twice a year is not sufficient; and as long as no penalty attaches to a failure to comply with the provision of the Act, so long the cleansing processes will be postponed in the majority of cases until the order is served. The conditions in Perth, Albany and Geraldton appear to be improving, as is shown by a comparison with the number of orders issued in 1912. This is especially noticeable in the two last named. In the Eastern goldfields, too, the number of orders was slightly smaller in 1913 than in 1912, while the number of factories has increased by four. In the South-west district the conditions appear to be no better, but no worse, and only in the suburban district from Fremantle to Armadale was there a decided deterioration.

This matter is a serious one for the workers in the State, and one which demands the attention of the advisors of the Department of Health. An insistance of a continuous and effectual control of the sanitary conditions of factories is all the more urgent since the Medical Officer of Health records a high incidence of enteric fever. There is a grave risk of disturbing the very satisfactory decrease of the death rate if this condition be allowed to continue, and one which cannot be measured by the immediate results or by the experience of any given year. Western Australia is fortunate in having an exceptionally good Department of Health, and in possessing natural advantages in respect to climate, comfortable industrial conditions generally, and a sparce population, which is comparatively easy to control. But in spite of the endeavours of man or of the assistance of nature, these exceptionally favourable conditions cannot continue if the legislature do not go to the root of significant defects such as these, and remedy them without loss of time.

THE MELBOURNE HOSPITAL INCIDENT.

The Commissioner, Mr. H. C. Malcolm, Inspector of Charities, has reported to the Premier of Victoria on the conditions obtaining at the Melbourne Hospital, with special reference to the alleged neglect of a patient named Albert McPherson (see "Medical Journal of Australia," 29th August, 1914, p. 215). It appears that the Commissioner has satisfied himself that the members of the medical staff of the hospital who examined and treated McPherson spent a great deal of time and attention to the case; and that they showed neither callousness nor a want of consideration. The Commissioner adds that he was convinced that the course adopted was considered by the responsible medical officers to be the best in the interest of the patient. This disposes with the specific charge, and demonstrates that the medical staff of the hospital recognized the possibility of an organic nervous lesion being present in this instance, without any definite manifestation. The attack delivered by the "Age" no doubt had its origin in the apparent want of caution evinced in the refusal to admit a man who subsequently was shown to be suffering from hemiparesis. The public and the police cannot be expected to realize the difficulty attending the differential diagnosis of certain cerebral lesions. The McPherson case is one of those rare cases in which the physical signs of the lesion are absent for a considerable time. The medical officers who saw the patient evidently realized this possibility, since they examined the patient at short intervals on several occasions before the man was sent home. The diagnosis of hysteria appeared to be justified on each occasion, although no mention in the evidence was made of any stigmata or other indications of a neurotic tendency. The advent of the National Insurance in England has brought with it an increase in the number of cases of malingering. Had this case occurred in a London Hospital, the same course would in all probability have been followed, but the diagnosis might have been less considerate to the feelings of the patient. It is evident that complaints of symptoms justify a period of observation, even when the physical examination undertaken by competent and experienced clinicians fails to reveal any objective signs. The Commissioner recommends that a receiving depot should be created, with Governmental control. Patients could be examined at this depot by experienced medical men, and referred by them to hospitals where they would receive adequate treatment. He further recommended that more accommodation should be available for the sick in

hospitals in the capital city of Victoria. The establishment of a receiving depot under Governmental control will not obtain the approval of the medical profession. In the first place, the determination of the suitability or otherwise of a patient for admission must rest with the medical staff of the hospital. In the next place, no Government has any right to exercise any control of the work of honorary physicians or surgeons or of salaried officers who are appointed by a hospital board, and who are responsible only to the medical staff. This raises the old question of professional control by the laity. In the case of medical men in Government service, the matter wears a different aspect, but even then, serious mistakes are apt to occur if an attempt be made to exercise departmental control in professional matters. In the third place, a receiving depot would not serve any useful purpose, and especially would not guard against either mistakes in diagnosis or errors in judgment. We quite endorse the second recommendation, which, if carried into effect, would go a long way to obviate mistakes of the kind in question. If the number of beds at the disposal of the profession were greater, and if a system of interchange and collaboration existed between the various hospitals, no patient whose complaints and physical signs did not tally would be discharged until he had been submitted to a period of observation sufficient to insure a correct diagnosis being made. The public has a right to expect skilful, cautious and humane treatment from the medical officers of hospitals, and if a reasonable allowance be made for the fallibility of mankind, we make bold to say that they get it. The best guarantee of medical efficiency is to be sought in an unreserved trust in the medical profession. Matters of medical import in connexion with hospitals, as well as those dealing with professional ethics, are best dealt with by the profession, without any interference from lay or Governmental sources. The selection of suitable men to hold hospital positions, the drawing up of regulations governing the admission and discharge of patients, and the adjustment of the relative duties of hospital and private practitioners should be vested in a committee of the British Medical Association, which, in Australia as elsewhere in the British Empire, is the only organization which can claim to represent the medical profession.

DEFECTIVE SCHOOL-CHILDREN.

The frequency of mental defects in school-children is attracting considerable attention at the present time. In the report on the results of medical inspection of school-children in Victoria for the year 1913, a recommendation is made that special schools be instituted in cities, and special classes in provincial centres, and that manual training occupy at least one-half of the school time (vide "M.J. of A.," 25th July, 1914, p. 96). Dr. Gertrude Helley, the Chief Medical Inspector of Schools in South Australia, also recommends the removal of the mentally defective children from the ordinary schools. She suggests that these children should be educated in special schools or, at all events, in special classes (l.c.). In a very valuable report, just issued, Dr. J. W. Hope, the Principal Medical Officer of the Department of Health of Western Australia, records that of the 10,454 children dealt with, 25 were of weak intellect, 3 suffered from epilepsy, 13 exhibited nervous movements, 6 suffered from chorea and 2 were described as neurasthenic. Mr. P. Board, the Director of Education of New South Wales, has announced that in the southern and south-eastern suburbs of Sydney there are 54 mentally defective children for whom special schools should be provided, and, in addition, there are 100 children with less pronounced defects who would benefit by a short attendance in the special schools. This measure would, in his opinion, render the children fit to attend the ordinary classes. He announces that it is hoped that by the end of the year a scheme will be submitted for the establishment of a special school for these children. The facts thus elicited in all probability do not reflect the full extent of mental deficiency among the children of Australia, but are sufficiently eloquent to command general attention. The Governments of the different States will not agree to an actual uniformity in the amelioration of this sad condition, nor do the economic conditions justify the same provisions for each State. But inasmuch as the problem is the same all over the Commonwealth, and the form of administration of the special school should be identical, it would be both economical and expeditious if a commission consisting of one or more expert medical inspectors, one or more expert neurologists, and one or more expert educationalists from each State were appointed to enquire into the local conditions and the methods adopted in other countries, and to draw up recommendations which might guide the Government of each State in the framing of regulations for the special schools and classes. Such an expert commission would bring forward information of a very valuable nature. The necessity of securing guidance in this matter is evidenced by the suggestion thrown out by the New South Wales Director of Education. Much harm may be done by a stereotype method of procedure in dealing with children of labile mentality.

Abstracts from Current Medical Literature.

SURGERY.

(108) Pyloric Obstruction in Infants.

W. A. Downes (Journ. American Med. Assoc., June 27, 1914) reports 22 cases of the above condition in which operation was performed. Seven of the patients died. Of the seven, three were in a state of collapse at the time of operation, and the outcome was to be expected. When the abdomen was opened, a pyloric tumour, varying in size from the terminal phalanx of the ring finger to that of the thumb, was found in every case. These tumours were hard, smooth, freely movable and free from adhesions. The pyloric portion of most of the stomachs was thickened and somewhat œdematous, and about half of them were dilated. No other pathological lesion or malformations were found. A typical posterior gasto-jejunostomy was done in 21 cases, and the Weber operation of partial pyloroplasty, as described by Rammstedt, in one case. The abdominal incision should be from ½ to ¾ inch to the left of the median line. The reasons for this are twofold: In the first place there is so little subcutaneous tissue in these babies that there is difficulty in obtaining union in the median wound, whereas the incision through the rectus muscle heals much more readily. Many postoperative deaths have followed evisceration resulting from non-union in these cases. The second reason for placing the incision to the left of the median line is the avoidance of the round ligament of the liver.

(109) Results of Conservative Treatment of Cystic Disease of the Breast.

R. B. Greenough and C. C. Simmons (Annals of Surgery, July, 1914) give the results of 83 cases of partial operation for cystic disease of the breast, and state that 17 were successful. In four cases carcinoma occurred in the breast tissue left by the partial operation. In five cases the disease recurred only in the other breast. In eight cases the disease recurred in the breast tissue left by the first partial operation. The authors believe that the occurrence of carcinoma in cases of cystic disease, estimated about 10 per cent. of all cases, demands radical treatment in all but the mildest cases. The operation of choice should remove all the gland tissue of the affected side, and, when the disease is bilateral, of both sides. This can be best accomplished by "subcutaneous amputation," leaving the nipple and areola, or by elliptical amputation. Where considerable doubt exists as to the diagnosis between cystic disease and carcinoma, elliptical amputation will be the operation of choice, as there is little doubt that the subcutaneous amputation in cancer cases would invite recurrence of the disease. Local excision of nodules in the breast suspected of being malignant should never be performed. The writers consider that the safest way of exploring a breast tumour of doubtful diagnosis is by removal of the entire breast, with the pectoral fascia, by elliptical amputation. Sections are then made, and if carcinoma is found the complete operation is performed. The operation of local excision or partial plastic resection should be restricted to the earliest and mildest types of cystic disease. In such cases plastic resection is the operation to be preferred.

(110) Early Operation for Gall Stones.

J. C. Hubbard (Boston Med. and Surg. Journ., June 18, 1914) has reviewed the conditions found in 108 autopsies on bodies in which gall stones were found. Gall stones were found in the gall bladder only in 76 cases. Gall stones caused the death of nine of these patients by setting up fatal trouble in the liver or gall bladder. The causes of death were: Hepatitis, cancer of the gall bladder, pancreatitis, abscess of the liver. There were 32 cases where the stones had passed beyond the gall bladder, and were found in the ducts. In 14 of these the cause of death was due to the gall stones. The causes were given as abscesses of the liver, peritonitis, cholangitis, abscess of bladder, cholecystitis. In four out of the 108 cases a stone was found which had ulcerated through into the intestine. The relative mortality between gall stones in the bladder and those that have passed into the ducts is of special interest. The deduction is obvious, that advice for operation should follow the establishment of a diagnosis before the stones have had time to set up any secondary changes, calculated to lead to a fatal result.

(111) The Localization of Osteomyelitis.

G. Williams (Brit. Journ. of Surg., July, 1914) reports five cases of osteomyelitis in adults, in which the infection had affected the shaft of the bone, and had apparently started in the middle and not at either end; this is in marked contrast to the acute infective osteomyelitis occurring in children, which is almost invariably in connection with the epiphysical end of the diaphysis. It might have been thought that this was associated with the age of the patient, but the occurrence of the same condition in a boy of 9 years negatived this as an absolute fact. However, the average age of the patients suggests that infection of long bones in the adult is prone to take place in the middle rather than at the ends of the bones. In three of the cases there was a recognisable primary source of the infection. In two cases this was a boil, and staphylococci were recovered from the bone lesion. The third showed a mixed infection from a bronchiectatic lesion. One of the remaining cases was associated with staphylococci aurei. There was no history of injury which could have determined the site of the infection in any of the cases. The cases bear out the idea that it is the medulla which is the first affected, and in this they do not differ from infective osteomyelitis of children; but it is not clear why the middle of the length of the shaft should be affected rather than the ends. It is known that organisms entering the blood tend to be segregated in the marrow, so that the primary medullary infection would be expected. The localisation of the lesion has been said to be due to injury, but it is improbable that trauma would affect a different part of the bone in the child and the adult. Lexer has attempted to explain the position of the infection by the anatomical conditions of the blood supply, but has not succeeded in demonstrating this satisfactorily. In the child the most active part of the bone is the metaphysis, while in the adult the medullary canal is probably most active. It may be that this is a possible explanation.

(112) Painless Tumours of the Spinal Cord.

Pearce Bailey (Journ. American Med. Assoc., July 4, 1914) says that it is no longer open to question that pain may be entirely absent in cases in which the other symptoms are typical of spinal cord tumour, and in which one way or another proof is finally offered that such tumour exists, or, more frequently, existed. It used to be believed that absence of pain was a definite indication that if a tumour existed it was intramedullary. This is now proved to be an error, as a great many cases of intramedullary tumour are on record in which pain has been a prominent symptom; and, on the other hand, in many of the painless tumours the growth is extramedullary. It thus becomes necessary to regard the condition associated with spinal cord tumours as similar to that in connection with tabes, that is, that pains may be absent in a disease which is usually highly painful; and that the absence of it in any case does not vitiate the diagnosis. The author considers that it is not justifiable to refuse to perform laminectomy because pain is absent. If this were done the surgeon would either lose the chance altogether of curing many patients, or would be forced to defer the operation so long that when it finally is done the injury to the cord is past remedy. This occurred on two occasions in the author's own practice. The operation is not hazardous in itself. Out of a series of 24 laminectomies there was only one death, and this patient died after a second-stage laminectomy for a suspected tumour of the cervical cord, a highly precarious region.

GYNAECOLOGY AND OBSTETRICS.

(113) Scopolamine Morphine Seminacosis in Obstetrics.

Krœnig (Surg. Gynæc. and Obstetr., May, 1914) records his experience in the Freiburg Clinic of scopolamine morphine narcosis in 3000 births. The degree of partial narcosis desired is called "Dæmmerschlaf" (half sleep). The increase in the number of operative deliveries of the present day is not due to a greater frequency of narrower and contracted pelves, or to a lack of muscular power, but is rendered necessary by the fact that women do not possess the strength required to resist the nervous exhaustion which is caused by the apperception of pains. He further considers painless delivery by means of narcotic inhalations, chloroform, ether, or nitrous oxide, unsatisfactory, firstly because they make such great demands upon the obstetrician, and secondly, when induced for a considerable period they materially diminish the expulsive power of the uterine muscle. He advocates the use of partial narcosis by scopolamine-morphine, a state during which the woman concerned has a preception but not an apperception of pain. She still reacts to the labour pains with an expression of pain, but does not retain any recollection of them. Scopolamine-morphine or scopolamine-narcophine is given in small doses frequently repeated as a hypodermic injection. The two extremes must be avoided; if too much is given labour pains cease, and there is danger of atonic bleeding. On the other hand, if too little is administered the pains are perceived, and also apperceived. The obstetrician aims at a condition lying midway between these extremes. The quantity given must be regulated by a psychological index, that is by frequently repeated tests of the memory; scopolamine has a peculiar and intense effect on memory. Two standard doses are given before attempting the test. The first dose of scopolamine is 0.00045 gramme, combined with 0.03 gramme of narcophine; the second dose three quarters of an hour later is 0.00045 gramme of scopolamine alone. Half an hour later the patient is asked whether she remembers whether an injection or prick with a needle had been made. If she remembers it the desired effect has not been produced. The tests are repeated at intervals of half an hour, and when the recovery of memory occurs injections are repeated as required. He admits that in some cases the frequency of pains is slightly reduced, but in his series the average duration of birth was increased by only a half of an hour. In regard to the disadvantages of the method he mentions that transitory states of excitement occur which necessitate the exclusion of the patient's relatives from the room. Further, that owing to the absorption of the smallest trace of scopolamine by the child a condition of apnœa sets in at times during the first moments of its life outside the womb. He denies that any permanent ill-effects are experienced by the child, and gives statistics in support of this contention.

(114) Treatment of Third Stage of Labour.

On comparing the statistics from a number of European maternity clinics with those of his own clinic at Marburg, Ahlfeld (Zeitschr. f. Geburtsh. und Gyn., Vol. LXXVI., No. 1) has come to the conclusion that there are overwhelming advantages of the expectant treatment. He suggests that the first 15 minutes after delivery should be devoted to the woman alone; in the next 15 the condition of both mother and child can be supervised. At the end of this time the obstetrician should inspect the external genital organs of the mother every five minutes, and should apply a fresh diaper over the vulva after each inspection. The less the uterus is manipulated after the expulsion of the child the sooner and the more completely will the placenta become detached. The expulsion will be effected without any undue loss of blood in the majority of instances if the uterus be undisturbed. No attempt should be made to remove the placenta for at least one to two and a half hours after the delivery of the child. By that time it should be lying low down in the vagina. Slight external pressure will suffice to expel it without difficulty. This does no harm if cautiously applied and if controlled by inspection every five minutes. It is very rare for serious, sudden hæmorrhage to take place if these precautions be taken.

(115) Constriction of Umbilical Cord by Amniotic Bands.

Cary (Surg. Gyn. Obstetrics, June, 1914), after discussing the origin of amniotic bands during premature life, and citing cases recorded by the chief authorities on the pathology of this condition, proceeds to record his case in which amniotic bands caused the death of a full-time fœtus by constricting the umbilical cord. A woman, aged 32 years, developed a condition of hydramnios during the latter months of pregnancy. The pregnancy was in all other respects uneventful until two days before the onset of labour, when she was disturbed by "excessive kicking of the baby." After this unusual demonstration of life no further fœtal movements were perceived. Just before labour commenced neither fœtal heart sounds nor fœtal movements could be detected. Labour progressed normally, and the patient was delivered of a slightly macerated female fœtus. Thirty minutes later the placenta was expelled spontaneously The cord was centrally implanted. The chorionic membrane was intact, but there was only a short fringe of amniotic membrane about 10 cm. long left around the insertion of the cord into the placenta. The remaining portion of the amnion was wrapped about the cord 22 cm. from the fœtus, in the form of two small ropes, knotted together in such a manner as not only to constrict the vessels of the umbilical cord, but also to push aside the Wharton's jelly in that region. The author adduces evidence to prove that the rupture of the amnion was recent, and was caused by the strain put upon it by the condition of hydramnios present. After the tear had occurred the fluid would have separated the amnion from the chorion, and allowed the former to float free in the sac. The movements of the fœtus probably tore the sac into shreds within a short time. The remnants being rolled up formed a sort of membranous rope, and loops of this passed around the child, with the result that a knot formed in the bands embracing the cord. Every movement drew the knot firmer, and as partial asphyxia set in they became more violent, and ultimately caused complete compression of the cord, and death of the fœtus from asphyxia.

(116) Myoma of the Uterus.

Maxwell (Proc. R. Society of Med., April, 1914) exhibited a uterus containing a large undegenerate interstitial fibro-myoma situated at the fundus. The tumour was more or less spherical in shape, and measured 6 inches in diameter. The specimen had been removed by hysterectomy from a patient 23 years of age immediately after the spontaneous delivery of a full-time living child. The large size of the uterus after the second stage of labour led to the discovery of the myoma. This also gave rise to a suspicion that the case was one of multiple pregnancy. Free bleeding ensued after the placenta had been expelled, and when the hand was introduced into the uterus a mass was felt bulging into the cavity. As the bleeding was profuse an expectant line of treatment was considered to be unjustifiable. The abdomen was therefore opened, and hysterectomy was performed in preference to myomectomy. The soundness of this preference was fully confirmed upon examination of the sectioned specimen. It was found that the greater part of placental site was situated directly on the relatively non-contracile capsule of the fibroid. This fact accounted for the profuse post-partum hæmorrhage, and might easily have resulted in the death of the patient had an expectant policy been indulged in, or a myomectomy attempted.

Notes on Books.

MICROBIOLOGY IN NEW SOUTH WALES.

The Government Bureau of Microbiology has issued its third report, dealing with the work performed during the year 1912.*. The report is a portentious document of some 241 pages, and is divided into two parts, the second of which is subdivided into seven chapters. In the first part an account is given of the routine work performed by the Bureau during the year and of the material used. Part II., division I., takes the form of a series of articles by the various workers in the Bureau, some of which articles have already been published in the scientific press. Dr. Cleland, the Acting Director, contributes a short article on the work in connection with plague: 17,154 rats and mice were examined for the presence of plague bacilli with a negative result. A very large amount of work was done on the ecto-parasite collected from rodents, including Xenopsylla cheopis, Ctenopsylla musculi, Ceratophyllus fasciatus, and Ctenocephalus canis and felis. Mention has already been made in this journal (see p. 233, Sept. 5, 1914) of the articles by Dr. Burton Bradley on the spread and control of typhoid fever, and on the bacteriological examination of the fæces of persons whose serum gave a positive Widal reaction. In connection with diphtheria some interesting information is included in articles on the bacteriological examination of the faucial mucus from persons who were suspected of having diphtheria by Dr. Shearman, on the presence of diphtheroid organisms in surgical lesions by Dr. Cleland, and on an acid fast bacillus resembling the Klebs-Loeffler bacillus by Dr. Shearman. Dr. Shearman was able to describe an organism which differed considerably from the known form of pseudo-tubercle bacilli, but which, in common with the acid-fast organisms described by Fraenkel, Moeller, Marzinowski, Lydia Rabinowitsch, and Pappenheim, may easily be mistaken for tubercle bacilli in the ordinary sputum examination. The subjects of tubercular infection, actinomycosis, anthrax, Pasteurellosis and contagious mastitis in cows are dealt with in a capable manner. In the appendices attached to the report on the lastnamed subject a considerable amount of epidemiological information of an interesting nature is given.

The second and third division are reserved for the treatment of pathological subjects in connection with parasitic and other affections of man and the lower animals. Dr. Cleland describes an embryoma of the testis of an infant 8 months old. This neoplasm is extremely rare in human beings, although it is not infrequently met with in some of the domestic animals. The histological characters of the tumour were well marked, squamous epithelium, prickle cells, sebacious glands, hair follicles and hairs as well as cartilage, bone, and duct-like and cystic spaces being more or less mixed together. He also described a curious tumour in the lung of a pig, to which he attributes a developmental origin. The tumour presented the histological characteristics of hepatic tissue in a state of cirrhosis. A considerable amount of space is devoted to the ectozoic and entozoic parasites, especially of animals. Dr. Cleland's work on the etiology of worm-nests in cattle is well known, and always commands the attention of epidemiologists.

In the fourth division a short report on the tests of the efficacy of chloride of lime for the bacteriological purification of water supplies and one on the prevalence of flies in the neghbourhood of Milson Island do not call for any special notice. The fifth division dealing with the diseases of plants, and the greater part of the sixth division, dealing with agricultural examinations, will be found very useful as catalogues. The arrangement is excellent, and the descriptions brief enough to enable the reader to obtain general ideas with a small amount of trouble.

The concluding chapter of the report is headed "Contributions to the History of Diseases in Man in Australia," and is written by Dr. Cleland. The subject is well treated, and there are very many points of interest. He deals chiefly with malaria, dengue fever, hydrophobia, anthrax and beri beri.

* Third report of the Government Bureau of Microbiology, dealing with work performed during the year 1912. By the Principal Microbiologist and his staff; presented to the Director-General of Public Health. 1914: Sydney, W. A. Gullick, Government Printer, pp. 241, with 5 full-page plates.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales branch was held at the B. M. A. Building, 30-34 Elizabeth Street, on August 28th, 1914, Dr. David Thomas (the President) in the chair.

Dr. Poate read a paper on Spinal Analgesia with Stovaine. In sketching the history of spinal anæsthesia, he mentioned that in 1899 Bier introduced cocaine into the spinal canal for the purpose of rendering the lower part of the body anæsthetic. In 1885, Corning had used spinal injections of the same drug for therapeutic purposes. Cocaine having been found too dangerous, a substitute, stovaine, was discovered in 1904 by Fourneau. Subsequently novocaine, tropococaine, alypin, and other drugs had been introduced. The maximum dose of stovaine is given at 0.075 gramme. The speaker had used stovaine for three years with excellent results. He employed Barker's solution of 5 per cent. stovaine with 5 per cent. glucose in distilled water. The solution and bottle must be sterilized before use. He used the syringe recommended by Barker, which has a capacity of 2 c.cm., and is fitted with long needles with wide angles, short bevelled points and central stilettes. The technique of the injection was described as follows:—The patient is placed in a sitting position, leaning well forward. If this be impossible, he may lie on his side with the knees drawn up and the back arched. After disinfection of the skin with iodine and spraying with kelene, the needle is pushed through the skin between the third and fourth lumbar spines slightly to one side of the mid-line, and then through the intervertebral space. As soon as the point has passed the tough lumbar fascia, the stilette is withdrawn and the needle is pushed slowly in until the canal is entered. The cerebro-spinal fluid must run freely. After one or two c.cm. have escaped, the syringe is fitted to the needle, and the solution slowly injected. It was, he stated, essential that these details be minutely followed. The extent of the anæsthesia depended more on the position of the patient than on the quantity injected. For operations on the lower extremities, and for varicocele, hernia, anal, or perineal operations, the patient should be laid flat on the table, with the head raised a little; the analgesia would then extend to the level of the umbilicus. For abdominal operations below the umbilicus the knees should be drawn up and a small pad placed under the buttocks; the analgesia would then reach the level of the ninth costal cartillage. For operations on the upper abdomen a sand bag should be employed under the buttocks, and the analgesia would extend to the clavicles. Since the stovaine solution has a specific gravity of 1,027, as compared with that of the cerebro-spinal fluid of 1,007, the extent of the analgesia would depend on the arch of the spinal column. He stated that full analgesia is obtained in from 4 to 10 minutes, and after from 15 to 20 minutes no extension could take place, owing to the neutralisation of the acid substance. The anæsthesia lasts up to two hours. The longest operation performed under the speaker's care was one hour and a half. At times tactile sensation returned toward the end, but no pain was felt. The method was of value for appendicitis, hernia, duodenal ulcer, gastro-enterostomy, cholecystotomy, etc., hydrocele, variocele, hæmorrhoids, leg operations, etc. The patients invariably preferred spinal to general anæsthesia after having had experience of both. In regard to toxic effects, Dr. Poate stated that nausea and vomiting at times occur 15 or 20 minutes after the injection. This passes off in a few minutes, and could be prevented by a preliminary injection of strychnine or pituitary extract. Severe headache and persistent vomiting might arise when the syringe had been boiled in a soda solution. The advantages of this

form of anæsthesia were muscular relaxation which is complete, comparative absence of shock, and diminished risk. The disadvantage of early consciousness of pain can be neutralised by giving a sedative early. He had employed it in children of 10 years of age, and in old people of 76. He regarded it as an ideal anæsthetic, especially when disease of the vascular, respiratory, or renal systems, or when diabetes or toxæmic conditions were present. Billon's solution prepared by Poulene Frères, of Paris, was reliable and quite stable. Of 9,918 cases reported by various writers in the B.M.J. in 1913 only three deaths took place, one of which was ascribed to status lymphaticus.

Col. Fiaschi spoke in favour of spinal analgesia, both with stovaine and with novocaine. He has had excellent experiences of Billon's solution. The only failure he has experienced was in an operation for hernia. In this case the patient began to feel pain. He agreed with all that Dr. Poate had said, and emphasised the value of the complete muscular relaxation obtained. In a few cases he had found that it was impossible to obtain a free flow of cerebro-spinal fluid through the canula. This was especially the case in old patients. Other observers met with similar difficulties. Dr. Poate, in his summary of the advantageous uses of spinal analgesia, had omitted a very important one. This was on military service. The special advantage to be gained by the use of this spinal method on the field of battle was that an assistsant to give the anæsthetic could be dispensed with. He hoped that Dr. Poate, who was about to join the expeditionary force, would take with him his equipment, and would induce his brother officers to follow his example. He strongly urged the use of novocaine for field use, because the solutions could be heated sufficiently for the purposes of sterilisation without the substance being dissociated.

Dr. J. B. Nash stated that had been using stovaine as a spinal analgesia at the State Hospital for operations below the umbilicus. He advocated the use of Billon's preparation (put up by Poulene Frères) of a powder contained in ampoules, which is dissolved in sterile saline solution with or without strychnine. The fluids are also ready for use in sealed glass tubes. The technique employed was approximately that described by Dr. Poate. He stated that the resistance of the ligamentum subflavum to the passage of the needle was distinctly felt. In all cases save one a satisfactory anæsthesia and perfect muscular relaxation were obtained. In the one case pain was not abolished. He was operating on a right inguinal hernia. There was some difficulty in finding the interlaminal space. The meningeal fluid flowed sparingly, and was blood-stained. When the syringe was applied to the needle and the piston withdrawn, the fluid flowed fairly well, and became clear. The mixture of cerebro-spinal fluid and the solution were then injected, but the analgesia was incomplete. In attempting to explain the failure he suggested that the stovaine may not have been sufficiently active, or there may have been some idiosyncrasy on the part of the patient. Similar experience has been made by Barker and others.

Dr. Woolnough has used stovaine as a spinal analgesia in a number of cases at the Coast Hospital for practically the whole period since Barker first published his method. He was very satisfied with the result obtained. He had found, however, that at times when the analgesia was complete, handling of the intestines and mesentery induced pain. He spoke of a case of an old lady who was for many reasons a bad subject for general anæsthesia. An operation was required for hæmorrhoids. He injected stovaine into her spinal theca, and was able to perform Whitehead's operation without the least discomfort of the patient. On another occasion he was called 40 miles in the country to a boy aged 15, with a strangulated hernia. He had stovaine and syringe with him, and was able to operate with the assistance of his chauffeur and the patient's father, who held the bowls and basins.

In his reply, Dr. Poate stated that he, too, had experienced failure in elderly people. He instanced one case of osteo-arthritis, in which he was unable to pass the needle into the spinal canal. He stated he was taking a very complete outfit with him for field service. In reply to Dr. Nash, he was of opinion that Billon's powder and solutions were unnecessarily complex. In regard to Dr. Nash's case, he was of opinion that the point of a needle was not lying free in the spinal canal. Under these circumstances, while the cerebro-spinal fluid might flow in small stream, the injected solution would be deposited in the surrounding tissue, and not in the canal. When blood issued from the needle he invariably withdrew it and started afresh. This accident was always due to the fact that the puncture was not cleanly done. After the needle had been passed into the canal it was wise to rotate it, in order to ensure that the point was lying free in the dural sac. In reply to Dr. Woolnough, he explained the pain in the mesentery as being due to the analgesia not being high enough. When the upper line of the anæsthesia was not above the level of the umbilicus, the mesentery and intestines would be sensitive to pain.

MEDICO-POLITICAL.

At a meeting of the Victorian Branch, held at the Medical Society Hall, Melbourne, on September 2nd, the President (Dr. A. L. Kenny) read a letter which he had sent on behalf of the Association to medical members of the Imperial Expeditionary Force, as follows:—

"The Council of the Victorian Branch of the British Medical Association, in the name of the members of the Branch, compliments you upon the high ideal of patriotism and of professional tradition which has actuated you in volunteering to devote your professional skill and experience to the welfare of those who, like yourself, have sacrificed private interests to the well-being of the nation.

"The best wishes of the members accompany you on active service, and I can assure you that everything that can be done to conserve your professional interests during your absence will be done by them."

To this letter he had received a number of replies, which showed that the good wishes of the members were greatly appreciated. He read one from Colonel Ryan, Principal Medical Officer in charge of the Victorian Medical Corps: "Will you convey to the Council of the Victorian Branch of the British Medical Association my sincere appreciation for their most charming letter of congratulation, and which I value most highly. I think I can honestly say that I have almost the flower of the younger members of our profession accompanying me to Europe to do what little lies in our power to help the Empire in her time of need. God grant that we may be successful—at any rate we will prove that we are worthy descendants of our fathers."

Dr. A. Honman moved: "That the members of the Victorian Branch of the B.M.A. pledge themselves to do all in their power to conserve the interests of those medical men who are going to the front." In support of the motion, he said that the medical men who were going out would bear a rather larger financial share of the national emergency than they were entitled to as members of the community at large. Their rate of pay was not large, and their work was of such a personal nature that they would inevitably suffer serious permanent losses. The individual efforts of the members of the B.M.A. should be directed to conserving their interests as far as was consistent with their duty to the public. He had no doubt that their appointments would not suffer—experience had shown that all bodies concerned would resist any attempt made upon them. The members of the B.M.A., by a sympathetic attitude towards locum tenentes, could smooth away many a difficulty, and help to diminish their losses.

Dr. G. A. Syme, in seconding the motion, said that it had been couched in general terms, leaving it for the local men to make light terms with those who were leaving our shores, so that their practices would be restored to them intact on their return. On being put to the meeting, the motion was carried unanimously.

The meeting announced for Wednesday, August 19th, of the Western Australian Branch has been postponed until September 10th. The cause for this postponement was that many members were away in camp on military duty, others were engaged in lecturing to first-aid classes in connection with the newly-formed branch of St. John's Ambulance Association, while others again were on military duty at the headquarters of the A.M. Corps in Perth.

At a meeting of the Council of the Victorian Branch, Dr. H. Douglas Stephens stated that, as a result of the deputation to the Minister of Education on the duties of bush nurses, the whole question has been referred to the Medical Advisory Board. This Board had formed the opinion that the nurses should undertake duties similar to those undertaken by school nurses in New South Wales, and that their duties should be wholly ancillary to those of the medical men. A sub-committee was formed to meet the school medical officers and the Bush Nursing Association, as well as the Royal Victorian Trained Nurses' Association, should be invited to send representatives. It was hoped that the whole question of bush nurses in schools might be discussed.

Dr. G. R. Adcock, of Tarnagulla, and Dr. Vera Scantlebury, of the Melbourne Hospital, were elected members of the Victorian Branch.

At the Council meeting of the Queensland Branch of the B.M.A., held on Wednesday, 26th August, 1914, it was resolved that the Branch would go into recess for a month, consequently there would be no general meeting on the 4th September.

Medical Societies.

(Affiliated with the British Medical Association.)

OPHTHALMOLOGICAL SOCIETY OF N.S. WALES.

The annual general meeting of the Ophthalmological Society of New South Wales was held at Sydney Hospital on 8th August, 1914, Dr. F. A. Pockley in the chair.

The annual report and financial statement were adopted.

The following office-bearers for the ensuing year were elected:—

President, Dr. R. H. Jones.
Vice-President, Dr. Halliday.
Members of Council, Dr. Maher, Dr. Pockley.
Hon. Treasurer, Dr. D'Ombrain.
Hon. Secretary, Dr. C. Shepherd.

Dr. Jones read notes of four interesting cases:—

1. Sympathetic ophthalmitis five weeks after Mule's operation for perforating injury. The patient was treated with atropine and mercurial inunction, and made a perfect recovery.
2. Implantation cyst of iris following cataract extraction, treated by excision of part of wall, with satisfactory results.
3. Trephining for glaucoma. In this case there was failure of filtration owing to the firm union of conjunctival flap. When this was laid back the trephine opening was quite clear.
4. Late infection 14 months after trephining. The eye was found to be in a condition of panophthalmitis.

Dr. Halliday showed X-ray negative of case of pituitary tumour. The fields of vision showed bi-temporal hemianopsia; the other symptoms were headache, dyspepsia and loss of sexual feeling, and failing vision.

Dr. Shepherd read notes of four cases of glaucoma treated by trephining.

1. In the first case the anterior chamber did not reform for four months in spite of the fact that a normal operation from a surgical point of view had been performed. The chamber had remained extremely shallow, but no leak in the surface had been discovered.
2. The second case was similar to the third case reported by Dr. Jones. Both eyes were operated on at the same time; in the one perfect filtration, with low normal tension, as measured by Schiotz's tonometer, was obtained. The other eye, one month after operation, was found to have raised tension 50 mm, by Schloiz's tonometer); there was no evidence of filtration, and the conjunctiva had healed firmly to the sclerotic. A fine Gräfe knife was passed subconjunctivally into the anterior chamber from one side of trephine hole to the other, and the flap was freed by cutting through the tissues included. This, so far, had been successful in keeping the tension down with the aid of eserin.
3. A perfectly satisfactory result in both eyes had been attained in the third case as regards the glaucoma, the tension having returned to the lower limit of normal, as determined by the tonometer. Unfortunately the sclerosis of the lens in both eyes had progressed rapidly since the operation, and vision was correspondingly weak.
4. A case of glaucoma showing a marked rise of tension in both eyes, with typical cupping of the discs. The right eye, which showed about 4 D of myopia, had a perfectly unaffected field, but the vision was only 6/18. The left eye, which was slightly hypermetropic, had a vision of 6/5 and a large curtailment of the field, amounting almost to the lower half. Eserin was controlling the tension, and the case was being watched.

In the discussion, Dr. Pockley recalled only two cases of implantation cysts in his own practice. One of these contained an eyelash carried in by the perforating injury. This was excised with satisfactory results. He doubted if Dr. Jones' case was a genuine sympathetic case, chiefly on account of the unusually excellent result of treatment. He suggested that it was a case of iritis occurring independently. Dr. Jones pointed out that the results of these cases were frequently favourable where the injured eye had been excised previous to the onset of the sympathetic ophthalmitis. Dr. D'Ombrain stated that he had had a case of implantation cyst following injury by piece of metal imbedded in the lens. The cyst wall was partly excised, and cure was effected. A general discussion on trephining ensued. Dr. Pockley had carried out this treatment three times, but preferred iridectomy. Dr. Jones was of opinion that Elliott's operation had yet to find its proper level; the tendency with any new procedure was for it to be taken up enthusiastically at first, and to be overdone; it was usually dropped after a short time, and revived later at its true value. Dr. Shepherd expressed the view that accepting the premise that a filtering cicatrix was the object to be attained in glaucoma operations, Elliott's method produced that result in the best way at the present juncture.

Naval and Military News.

The military service of the next expeditionary force will consist of one clearing hospital. There will be two stationary hospitals of 200 beds each, with 8 medical officers; two general hospitals, with 520 beds each and 20 medical officers. In addition, there will be one field ambulance and one light horse field ambulance with regimental surgeons attached. Over eighty medical officers will be appointed. It is anticipated that many of the leading physicians and surgeons in the Commonwealth, as well as the junior members of the profession, will volunteer. The present rank of the medical officers of the various military districts will be raised. The medical officers will be posted in suitable positions irrespective of the States from which they come.

The expedition will leave in six weeks. The rate of pay will be 26/- per diem for Captains, 35/- for Majors, and 45/- for Lieut.-Colonels (inclusive). Those volunteering for service as medical officers should send in their applications to the Headquarters through the district P.M.O. Applications from nurses are not required at present.

1st MILITARY DISTRICT.

The following medical officers have been selected to serve with the Expeditionary Force (Queensland Contingent):—

Lieutenant Colonel A. Sutton, Officer in Command, Field Ambulance.
Captain A. Marks, Medical Officer, Field Artillery Brigade.
Captain A. G. Butler, Medical Officer, 9th Infantry Regiment.
Captain Macartney, Medical Officer, Light Horse Regiment.
Captain Dixon and Captain Conrick, A Section, Field Ambulance.

Dr. Hamilton Kenny has entered the Medical Service of H.M. Navy till the end of the war, and is at present serving with the submarine flotilla.

3rd MILITARY DISTRICT.

We learn that General William Williams, D.C., has been appointed in command of the 3rd Division of the Army Medical Corps accompanying the Expeditionary Force, with Col. Charles S. Ryan as second in command.

Dr. R. Tate-Sutherland has been appointed in command of the Light Horse Field Ambulance of the Expeditionary Force.

Dr. George Horne, of Melbourne, who is in Europe on a visit at present, has joined the Australian Volunteer Hospital in his capacity of Lieut.-Colonel.

5th MILITARY DISTRICT.

The Medical Corps of the Western Australian Contingent (5th Division) of the Expeditionary Force is now complete. It consists of 1 medical obcer and 41 men.

The following appointments are announced in the Commonwealth Gazette of September 1st, 1914:—

AUSTRALIAN ARMY MEDICAL CORPS.

To be Regimental Medical Officers—

1st Field Artillery Brigade—

Captain (provisional) A. L. Buchanan.

Divisional Ammunition Column.

Major J. S. Purdy, unattached list.

Head-quarters—Divisional Engineers—

Hugh Bennett Lewers, and to be Captain (provisionally).

Divisional Train—

Captain (provisional) A. F. Jolley.

Light Horse Brigade.

To be Regimental Medical Officer—

3rd Regiment —

Wentworth Ronald Cavanagh Mainwaring, and to be Captain (provisionally).

3rd Field Ambulance—

Bertram Ingram to be Captain (provisionally).

Lieut.-Colonel G. A. Marshall, V.D., Australian Army Medical Corps, Commanding Officer, 6th Field Ambulance.

Captain J. L. Whitham, A. & I. Staff, Inspector, Inspector-General's Department.

Captain J. P. Lalor, A. & I. Staff, Brigade Major, 2nd Brigade Area and 2nd Infantry Brigade.

2nd Field Artillery Brigade.

Raymund Stanley Whitford, and to be Captain (provisionally).

2nd Infantry Brigade.

5th Battalion—

2nd Lieutenant E. F. Lind, from the Melbourne University Rifles, and to be Captain (provisionally.)

7th Battalion—

Eric Wilkins Gutteridge, and to be Captain (provisionally).

8th Battalion—

Harold Edgar Atheling Jackson, and to be Captain (provisionally).

The Division.

2nd Field Ambulance—

Andrew Victor Honman, to be Captain (provisionally.)

The Division.

1st Field Ambulance—

To be Lieutenant-Colonel, and to command—

Lieutenant-Colonel B. J. Newmarch, V.D., Australian Army Medical Corps.

To be Majors—

Major R. J. Millard, Australian Army Medical Corps.

Major E. S. Stokes, Australian Army Medical Corps.

To be Captains—

Captain J. B. St. V. Welch, Australian Army Medical Corps.

Captain A. J. Aspinall, Australian Army Medical Corps.

Captain (provisional) L. W. Dunlop, A.A.M.C.

Captain H. H. G. Poate, A.A.M.C.

Captain C. E. Wassell, A.A.M.C.

Captain W. E. Kay, A.A.M.C.

2nd Field Ambulance—

To be Lieutenant-Colonel and to command—

Lieutenant-Colonel A. H. Sturdee, V.D., Australian Army Medical Corps.

To be Major—

Major W. W. Hearne, Australian Army Medical Corps.

To be Captains—

Captain C. G. Shaw, Australian Army Medical Corps.

Captain T. E. V. Hurley, Australian Army Medical Corps.

Captain B. Quick, Australian Army Medical Corps.

Captain R. W. Chambers, Australian Army Medical Corps.

Captain (provisional) H. J. Williams, Australian Army Medical Corps.

Captain (provisional) G. C. Mathison, Australian Army Medical Corps.

To be Quartermaster—

Honorary Captain C. Morley, Australian Army Medical Corps.

3rd Field Ambulance—

To be Lieutenant-Colonel, and to command—

Lieutenant-Colonel A. Sutton, Australian Army Medical Corps.

To be Major

Major H. N. Butler, Australian Army Medical Corps.

To be Captains—

Captain O. P. Dixon, Australian Army Medical Corps.

Captain D. M. McWhae, Australian Army Medical Corps.

Captain (provisional) C. G. C. Moodie, Australian Army Medical Corps.

Captain (provisional) H. H. Fry, Australian Army Medical Corps.

Captain (provisional) H. V. P. Conrick, Australian Army Medical Corps.

Captain (provisional) F. Goldsmith, Australian Army Medical Corps.

Light Horse Brigade.

Light Horse Field Ambulance—

To be Lieutenant-Colonel and to command—

Lieutenant-Colonel R. P. Sutherland, Australian Army Medical Corps.

To be Major—

Major W. W. Helsham, Australian Army Medical Corps.

To be Captains—

Captain R. Fowler, Australian Army Medical Corps.

Captain (provisional) P. Fiaschi, Australian Army Medical Corps.

Captain M. M. Ramsden, Australian Army Medical Corps.

Captain J. J. Nicholas, Australian Army Medical Corps.

To be Regimental Medical Officers.

4th Light Horse Regiment—

To be Major—

Major C. C. Macknight, Australian Army Medical Corps.

3rd Field Artillery Brigade—

To be Captain—

Captain A. H. Marks.

1st Infantry Brigade.

1st Battalion—

To be Major—

Major W. C. Grey, Australian Army Medical Corps.

2nd Battalion—

To be Captain—

Captain Tebbutt, Australian Army Medical Corps.

3rd Battalion—

To be Captain—

Captain H. Flecker, Australian Army Medical Corps.

4th Battalion—

To be Captain—

Captain J. W. B. Bean, Australian Army Medical Corps.

2nd Infantry Brigade.

6th Battalion—

To be Captain—

Captain J. J. Black, Australian Army Medical Corps.

3rd Infantry Brigade.

9th Battalion—
To be Captain—
Captain A. G. Butler, Australian Army Medical Corps.

10th Battalion—
To be Captain—
Captain (provisional) H. C. Nott, Australian Army Medical Corps.

11th Battalion—
To be Captain—
Captain E. T. Brennan, Australian Army Medical Corps.

12th Battalion—
To be Captain—
Captain V. R. Ratten, Australian Army Medical Corps.

Light Horse Brigade.

To be Regimental Medical Officers—
To be Captains—
Captain A. Y. Fullerton, Australian Army Medical Corps.
Captain (provisional) G. W. Macartney, Australian Army Medical Corps.

Lieut.-Col. J. Loftus Cuppaidge, of Gympie, Queensland, is at present on duty in charge of the Base Hospital, Townsville.

FIRST MILITARY DISTRICT.

The following memorandum has been drawn up by Captain G. P. Dixon, M.B., M.S., at the request of the P.M.O., 1st Military District (Queensland), for the guidance of medical officers in charge of the Reserve Forces:—

MALARIA.

(1) **Prophylaxis:**—Quinine the best prophylactic: 5 grs. daily, with 10 grs. on Sundays (Castellani); 40 centigrammes daily in chocolate tablets (Celli. Trop. Med., 1908).
3-5 grs. tannate or sulphate of quinine (Carnegie Brown, Trop. Med. June, 1911).

(2) **Mosquitoes:**—Mosquito nets and quinine are the only practical prophylactics for troops in India (Smallmann, J. R., A.M.C., 1911, 209). Protection of exposed parts by clothing. Rubbing exposed parts with citronella 1½, kerosene 1, cocoanut oil 2, in 1 per cent. carbolic acid (Castellani).

(3) Antimalarial measures for camps:—Avoid swamps and dense bush. Mosquito nets, etc.

(4) Refer to Dr. Breinl.

(5) **Treatment:—**

(a) Acute malaria:—Quinine orally, 15 grs. at 6 a.m. and 11 a.m., up to 90 grs. daily in pernicious cases; discontinue after 24 hours and repeat if necessary (Pelham Trop. Med., Sept., 1913).
Quinine hypodermically: Quin. et urea hydrochlorid. 1 gramme twice daily for two weeks in bad cases, then twice weekly for three months (Smallmann, J. R., A.M.C., 1911, 269).

(b) Chronic malaria and prevention of relapses: 1 ampoule each of trypsini et inject. amylopsin, in 10 c.cm. of normal saline injected into buttock; one injection for mild cases; three for severe or until rise of temperature occurs; stated to give excellent results. (Lambelle, J.R., A.M.C., Dec., 1913).
Quinine in chronic malaria: 30 grs. daily for three days each week end. (Pelham, Trop. Med., Sept. 1913.
Breinl's Treatment for chronic and relapsing malaria: Recommends the hydrochloride of quinine in syrup of orange and water—
1st day, give 5 grs. three times a day.
2nd day, 10 grs. three times a day.
3rd day, 15 grs. three times a day.
4th day, 5 grs. three times a day.
5th day, 10 grs. three times a day.
6th day, 15 grs. three times a day.
7th day, 5 grs. three times a day.
8th day, 10 grs. three times a day.
9th day, 15 grs. three times a day.
Then for two weeks give 5 grs. three times daily every second day; then for four weeks give 5 grs. three times daily twice a week; then for six weeks give 5 grs. three times a day once a week.

AMOEBIC DYSENTERY AND LIVER ABSCESS.

(1) **Prophylaxis:** Boil all water and avaid uncooked fruit and vegetables entirely.

(2) Treatment: Pulv. ipecac. by mouth up to 90 grs. daily if it can be taken.
Better: Emetine hydrochloride or emetine hydrobromide gr, 1/6 to 1/3 twice daily; gradually reduce dose; irrigation of rectum with alum or calcium permanganate, 10 grs. to pint.
Milk diet and rest (L. Rogers, B.M.J., 22nd June, 1912).
Emetine solution can be sterilized by boiling for short time. (Low, J. Trop. Med., June, 1914.).

(3) **Liver Abscess:**—Emetine as above, 1/3 to 1 gr. daily.
Aspiration of abscess and injection into cavity gr. ½ emetine hydrochlor. to 2 oz. salt solution.
Emetine valuable as diagnostic of amoebic disease. (L. Rogers, B.M.J., 4th Aug., 1912).

BACILLARY DYSENTERY:

(1) **Prophylaxis:**—Boil all drinking water; avoid uncooked fruit and vegetables; quarantine; protective doses of serum; fly screens. (Orton and Dodd, Boston Med. and Surg. Journal, June, 1910, 863).

(2) **Treatment:—**
(a) Polyvalent serum, 40-80 c.c. subcutaneously; repeat up to 500 c.cm. (Ruffer and Willmore, B.M.J., 1910, 1506).
Vaccines, 80-100 c.cm.; repeat daily. (Willmore and Savage, Trop. Med., Sept., 1913).
(b) Sodii sulphat, 1 drachm every hour for 24 hours.
Pure cyllin, 60-90 minims, in gelatine capsules daily, combined with salines and Lister Institute polyvalent serum; good results in Fiji. (Bahr., B.M.J., 7th Feby., 1914).
Mag. sulph early followed by large dose of bismuth, ½ to 1 drachm, hourly with opium. (Osler).

CHOLERA:.

(1) **Prophylaxis:**—Detection of source of infection; many vibrios present in water; specific organism agglutinates with serum of cholera carriers.
Vibrios persist in gall bladder. Flies spread disease.
Boil all water; fly-proof safes for food; disinfection of dejecta with chlorinated lime; strict quarantine until stools free from vibrios. (Greig, Lancet, 1912, 11, 1425).
Protection: Inoculation Vaccine ii, 1 c.c. (Haffkine, J., Trop. Med., Aug. 1, 1913).

(2) Treatment:—Permanganate of potassium or permanganate of calcium, ½ to 1 gr. to pint of water, increasing to 4-6 grs. to pint; give as much as the patient will take.
Pill pot. permang, 2 grs. in coating of salol and sandarach varnish.
Give one pill every quarter hour for one hour, then every half-hour till stools become greenish; repeat on second and third day in severe cases. (L. Rogers, B.M.J., 1910).
Hypertonic Saline—Sodii chlorid., 120 grs.; potass. chlorid., 6 grs., calcium chlorid., 4 grs. to one pint.
Sp. gr. of blood good guide; if above 1062 saline indicated.
Give 3 or 4 pints intravenously at rate of 3 oz. per minute; slow to rate of 1 oz. per minute if there is headache or nausea. If rectal temperature rises, give saline at 98 deg. F. or lower, and give enemata of cold water.
Uraemia, normal saline: Dry cupping to kidneys; digitalin, strophanthin, adrenalin, and pituitrin. (L. Rogers, B.M.J., Sept. 24, 1910).

BERI BERI.—Unimportant with Europeans. Fresh air and food will prevent and cure. Proved to be due to a prolonged diet of polished rice.

SPRUE.

(1) **Prophylaxis:**—Probably due to protozoa, with secondary infection with fungi; probably infection conveyed by water. (Castellani, J., Trop. Med., 1913, 33).

(2) Treatment:—Rest for six weeks and diet of milk and fruit juices only for six weeks; gradual return to full diet; constant supervision; drugs practically useless; castor oil and laudanum at first; oil of cinnamon 3 minims, in gelatine capsules. (G. E. Williams, Mackey, Qld.).
Chromo-santonin (i.e., santonin exposed to sunlight until it becomes yellow throughout) is strongly recommended in doses of 5 grs. twice daily for seven or eight days; repeat in relapses—which are rare. (Begg and Maxwell, Chin. Med. Journal, 1911, 374).

Personal.

Dr. Gowland has been appointed professor of anatomy at the Dunedin University, New Zealand, in place of the late Dr. Scott.

Dr. Miller Johnson has resumed practice at Albert Park, Victoria.

Dr. Wm. Edgar Wilson has commenced practice at High Street, Charlton, Victoria.

Dr. W. T. Hayward, Chairman of the Federal Committee of the B.M.A., who is now in England, having attended the annual meeting of the British Medical Association at Aberdeen, had the degree of LL.D. conferred upon him by the University of St. Andrews.

Dr. G. Moncrieff Barron has left Kempsey, New South Wales, where he has been for some years, and is now practising at Raffeen, Esplanade, Manly, New South Wales, in partnership with Dr. L. Watson-Harvey.

Dr. S. G. L. Catchlove, of Manilla, N.S.W., is proceeding to England shortly. Dr. L. Birch, late of Bellingen, N.S.W., has succeeded him.

We learn that Dr. G. P. O'Dea is making satisfactory progress toward recovery at the North Adelaide Private Hospital, where he has been under treatment for some time. As announced in the "Medical Journal of Australia," of July 11th, 1914, Dr. O'Dea met with a serious motor cycle accident on June 9th, and was unconscious for a considerable time. It will probably be some weeks before he will be well enough to leave the hospital.

Dr. E. J. Stuckey, the principal of the Union Medical College, Pekin, is leaving Australia for China. He was entertained before leaving Adelaide by the members of the Adelaide University.

Dr. Lindo Ferguson, of Dunedin, New Zealand, arrived at Auckland from Sydney by the Maheno, on the 23rd August, after a holiday visit to Australia.

Dr. A. Martel Aspinall has returned to Sydney, after 18 months' study in England and on the Continent.

Dr. Crawford, of Miles, Queensland, has left for Melbourne, on a month's holiday. Dr. McDonald, of Stanthorpe, Queensland, is relieving him.

Dr. J. E. Bateman has removed to District Hospital, Selwyn, North Queensland.

Dr. Eustace Russell, of Stanthorpe, Queensland, who has been on a visit to Brisbane and Sydney, returned to Stanthorpe on August 30th.

Dr. M. Veech has commenced practice at 209 Macquarie Street, Sydney.

Dr. David Keer has removed to Young, New South Wales.

Dr. W. R. Carter has removed from Boggabri, New South Wales, to "Glenelg," Carr Street, Coogee.

Dr. Kennedy has resumed practice at 16 Collins Street, Melbourne.

Dr. Teague returned from England by the "Maloja," on 25th August, and has resumed practice at Victoria Park, Western Australia.

We learn that Dr. Henry Cordner, resident surgeon of the Bendigo Hospital, has accepted a commission in the Army Medical Corps accompanying the British Expeditionary Force to the Continent.

Dr. G. E. Rennie has returned to Sydney, having relinquished his intention of proceeding to England and to the National Neurological Congress at Berne, where he was to have represented the Commonwealth Government.

Vital Statistics.

VICTORIA.

The Government Statist has issued the following vital statistics for the State for the quarter ending 30th June, 1914:—

	Quarter ending 30th June. 1913	1914
Marriages	2944	3253
Births	9169	9086
Deaths	3678	4030
Deaths due to—		
Phthisis	234	256
Other Tubercular Diseases	60	56
Cancer	295	277
Typhoid Fever	24	31
Diphtheria	76	69
Measles	6	9
Scarlet Fever	3	1
Whooping Cough	15	16
Deaths of—		
Infants (under 1 year)	612	637
Aged people (65 years and upwards)	1336	1445

Vital Statistics of Melbourne, Ballarat and Bendigo for the Quarters ended 30th June, 1913 and 1914.

	Greater Melbourne. Qr. ended 30th June.		Ballarat. Qr. ended 30th June.		Bendigo. Qr. ended 30th June.	
	1913	1914	1913	1914	1913	1914
Births	4303	4324	286	265	316	333
Deaths	1917	2100	158	178	163	180
Deaths due to—						
Phthisis	125	148	8	14	20	14
Other Tubercular Diseases	40	33	—	1	4	2
Cancer	174	153	9	11	7	13
Typhoid Fever	5	3	1	2	3	6
Diphtheria	36	35	4	2	5	2
Measles	2	8	—	—	—	—
Scarlet Fever	2	1	—	—	1	—
Whooping Cough	2	4	4	—	—	—
Deaths of—						
Infants (under 1 year)	318	320	32	21	28	27
Aged people (65 years and upwards)	655	698	71	83	49	66

Marriage statistics for the June quarter of 1914 were most satisfactory, but birth and death figures were not so favourable as those for the corresponding period of the previous year. The marriages numbered 3253, which was the highest total ever recorded for a quarter, and represented an advance of nearly 11 per cent. on the number for the preceding June term. A striking feature of the figures was the high marriage rate among metropolitan residents. The number of marriages for the metropolis was 2044, or slightly more than 21 per cent. above the quarterly average for the previous five years. The births numbered 9086 for the whole State, and 4324 for Greater Melbourne, as compared with 9169 and 4303 respectively for similar months in the preceding year. The infants born out of wedlock numbered 510, or 15 below the total for the second quarter of 1913. The deaths for the whole State were 4030, or 352 more, and those for the metropolis were 2100, or 183 more than in the same period of the previous year. There were 637 deaths of infants under 1 year of age, of which 320, or slightly more than one-half, occurred in the metropolitan area. Tubercular diseases accounted for 312 deaths, or 18 more; typhoid fever for 31, or 7 more; while cancer was responsible for 277, or 18 fewer; and diphtheria for 69, or 7 fewer deaths than in the corresponding term of the preceding year.

TASMANIA.

The Government Statistician has just issued his report on the vital statistics of Hobart and aunceston for the month of July, 1914. The number of births registered was 26 in excess of the number registered in the corresponding month of 1913, and 45 in excess of the average number registered in July during the past five years. In Hobart the birth-rate was 3.15 per 1,000 of population, and in Launceston 3.36. These figures include births in hospitals, asylums, gaols, etc. The number of deaths was less than that of the corresponding month last year, but slightly more than the average for July during the last five-year

period. The death-rate, including deaths in hospitals, asylums, gaols, etc., was 3.33. Of 86 deaths registered during July, three actually occurred during the month of June and three during the month of April. There were 12 deaths of children under 1 year of age, viz., 7 in Hobart and 5 in aunceston. Only one death from enteric fever occurred in the Hobart district and none from diphtheria. 15 of the 53 deaths registered in the Hobart district and 8 of the 33 deaths registered in the Launceston district took place in the various institutions. The death-rate was slightly lower in the city than in the remainder of the Hobart district, while it was considerably higher in the city than in the remainder of the Launceston district. The figures given are exclusive of the deaths in hospitals, etc. Among the chief causes of death diseases of the circulatory system, old age, and diseases of the nervous system, as well as diseases of early infancy, follow general diseases in point of frequency. The actual numbers, however, are so small that a preponderance of one over another cause must be largely a matter of chance.

In regard to the country districts, the statistician gives a birth-rate per 1000 of population of 2,44, as compared with 2,22 for July, 1913. The death-rate was 0.55, as compared with 0.81. 75 deaths were registered during the month. Of these 15 were due to general diseases, including 4 from tuberculosis, and 5 from cancer. There were 2 deaths from diphtheria, but none from enteric fever.

NEW ZEALAND.

In his return for the month of July, 1914, the Government Statistician of New Zealand records a birth-rate of 2.99 per cent. 1,000 of population, and a death-rate of 0.93. The death-rate in Wellington worked out at 1.08; in Christchurch at 1.00 and in Dunedin at 0.98.

Public Health.

HEALTH OF VICTORIA.

During the four weeks, ending 18th August, 1914, the following returns have been received from the Medical Officer of Health of Victoria:—

Whole State.	Typhoid Fever.	Diphtheria.	Scarlet Fever.	Pulmonary Tuberculosis.
Cases ..	11	550	46	86
Deaths ..	2	11	0	46

Metropolis.	Typhoid Fever.	Diphtheria.	Scarlet Fever.	Pulmonary Tuberculosis.
Cases ..	3	197	30	52
Deaths .	0	7	0	27

The number of cases of diphtheria notified from the various municipalities for the fortnights, ending August 4th and August 18th respectively, were as follows:—

Municipality.	Fortnight ending August 4th.	Fortnight ending August 18th.
Bendigo	41	51
Mildura	27	—
Melbourne	16	—
S. Melbourne.	—	14
Footscray ...	—	12
Stawell (B)	—	11

The Medical Officer of Health reports that the outbreak of diphtheria at Mildura has now come to an end, and that energetic means were being taken to stamp it out at Bendigo. The type of disease at both places was very mild, and the death-rate exceptionally low.

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ended August 22nd, 1914:—

Notifiable Diseases.	Number of Cases.
Typhoid Fever	7
Diphtheria	59
Varicella	23
Phthisis	2
Erysipelas	7
Cerebro-Spinal Meningitis	1
Scarlet Fever	5
Puerperal Fever	1
Total	105

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ended 29th August, 1914:—

Notifiable Disease.	Number of Cases Reported.
Typhoid Fever	2
Diphtheria	62
Varicella	23
Phthisis	8
Erysipelas	2
Scarlet Fever	5
Ankylostomiasis	1
Puerperal Fever	2
Total number of cases	105

Medical News.

Dr. L. G. Thompson and Dr. G. R. Clemens have been elected members of the Medical Council of Tasmania, in the place of Dr. W. G. Maddox (retired) and Dr. C. Butler (deceased). These gentlemen, together with G. H. Hogg, who has for some years been a member of the council, will in future hold special meetings in Launceston for the registration of medical men. This arrangement will obviate the necessity of medical men on their arrival in the State having to journey to Hobart for the purpose of registration.

Dr. Maddox retired from practice a short time ago, and has resigned his seat on the Medical Council of Tasmania. He is now visiting his married daughter in the South of England. He is a University College graduate, and was a pupil of Jenner and a contemporary of Gowers. He has practised continuously in Launceston since 1870.

The Compulsory Vaccination Bill which is being considered by the egislative Assembly of Victoria, reached the stage of debate for the second reading on August 26, 1914. On the motion of Mr. Outtrim the debate was postponed until September 30, a committee of five having been appointed to consider the whole question in the interval.

In the House of Assembly, South Australia, the Mental Defectives Bill passed its third reading on September 1. Very little progress has been made in the passage of the Public Charities Funds Amendment Bill in the Legislative Council.

The electors of Melbourne, like those in other electoral districts of the Commonwealth, have been seriously affected by the present state of war and have neglected their duties in connection with Federal affairs. Out of a total of 42,401, under 25,000 went to the polls. Mr. Maloney, the Labour candidate, secured 17,789 votes and the seat, against Dr. W. Kent Hughes, the Liberal candidate, whose supporters only numbered 7,432. In expressing our regret at Dr. Kent Hughes' failure to secure the seat, we venture to express the hope that at the next election, in less troublous time, the Melbourne electorate will recognise its duty of recording votes in large numbers and will realise the advantages of securing a medical man of Dr. Kent Hughes' calibre as their member.

The Federal Treasury issued on September 1st a return setting forth the number of maternity bonuses since the introduction of this measure. 242,404 mothers received their £5. In the following table the number of claims granted or rejected, and those still under consideration in

the various States are set out. Since the 1st August, 1914, 11,702 claims have been granted.

State.	Granted.	Rejected.	Under consideration.	Total.
N.S.W.	92,277	654	338	93,269
Victoria	65,319	283	345	65,947
Queensland ..	35,146	195	154	35,495
S. Australia ..	22,617	133	139	22,889
W. Australia .	16,355	121	164	16,640
Tasmania ...	10,690	67	29	10,786
Totals	242,404	1,453	1,169	245,026

Correspondence.

THE IMMEDIATE FUTURE.

Sir,—The frontal attack in Victoria is under truce, but a flanking movement is being considered by the Courts of the A.O.F. The idea is to eliminate some lodge doctors and give their lists to others in the district.

It is not necessary to give any notices, simply take the names off one list and place them on others. What follows? Those left out will look with envious eyes on those left in, and the lodges can then play off one section of the profession against the other. "More work, less pay; or we offer your income to the man who longs for it."

What else? The lodge doctors who have families, but have lost their lists, and cheques, will be driven by necessity to "institute" practice, perhaps to canvassing and advertising, who knows? What else? The younger men, most highly trained, will not readily get household practice, the elder men holding all the appointments and taking on an assistant during an epidemic or a nervous breakdown. The remedy is hard to find, as the whole process will be carried out gradually and within the corners of all existing agreements. Here is the occasion. Your next issue may find the man with the remedy.

Faithfully yours,

F. E. WEBB, M.B.B.S.

Williamstown, Vic.,
27.8.14.

The Metropolitan Water and Sewerage Board,
Albert Street, Brisbane, 28th August, 1914.

Sir,—

RE "DISPOSAL OF SEWAGE AT BRISBANE.

Sir,—Referring to my previous letter dated 22nd instant, relative to the article published by you and headed as above, I have the honour, by direction of the President, to now point out the errors in the article, and to state the facts.

Your Statements.	The Board's Statements of Fact.
(1) After long delays, the Minister for Works, the Honourable W. H. Barnes, has determined to carry the city sewage from all parts of Brisbane through a system of sewers to Luggage Point, in the neighbourhood of Sandgate.	Luggage Point is not in the neighbourhood of Sandgate. The site of the Outfall Works at Luggage Point is not less than six (6) miles from Sandgate.
(2) The sewage would be discharged without preliminary treatment into the sea, near the mouth of the river.	The Board's Act (See Sec. 34, sub-sec. 9) provides for the discharge of the effluent into deep water after all solids have been removed, and before the effluent is so discharged it has to be purified and rendered innocuous.
(3) It was pointed out that, under certain circumstances, a sewage outfall at Sandgate would be highly offensive, etc.	There is not any outfall proposed for Sandgate, but, as above stated, the outfall works will be situated not less than six (6) miles from Sandgate.
(4) In the next place it was stated that the flow in the sewers would be sluggish owing to the small fall in considerable lengths of the sewers,	The sewers are designed to be self-flushing. The fall, as designed, will effect such self-cleansing.
(5) There are, among others, two methods of turning sewage into money, the first is by irrigation, the sewage being utilised as manure for the land, etc.	The whole district was systematically searched for suitable land of sufficient area for a sewage farm, but without success.
(6) The second method is to collect the greater part of the particulate matter by coarse screening, and to sell this material, or to incinerate it for the purposes of various manufactures. In the latter case the effluent can be discharged in a suitable situation into either sea or river, or can be purified by chemical or mechanical means, so that a practically pure effluent results.	Vide Ante. Mr. A. B. Brady, M.I.C.E., London, Under-Secretary for Public Works, on his return from a tour of Europe and America (during which he inquired into such matters), stated, in writing, under date 4th November, 1913, that the site at Luggage Point, selected by the Board and approved by the Governor-in-Council, is the best that can be found, and should be adhered to, which gave the final consent of the Government to the whole scheme. The said Minister has since taken that stand, and declines to hear further objections.
(7) It would probably be advisable, under the existing circumstances, to select either the irrigation method or the coarse screening method, with the discharge of a comparatively pure effluent into some of the higher regions of the river.	This is not permissible under the Act, and the Board's scheme is in accordance with the requirements, mandatory and permissible, of that measure. There is not any precedent for this course.
(8) The screening is best carried out by a circular disc, similar to that employed in Dresden and elsewhere.	It is repeated that Sandgate is six (6) miles from the site of the outfall works.
(9) Method of above detailed.	Does not appeal to an expert.

The article in question appears to be more or less a recapitulation of opinions and statements of a number of residents of Sandgate, who, while, in effect, suggesting that they can do the Board's work better than it has been done and is being done, cannot agree among themselves as to their domestic water supply.

It is a matter not only of regret, but also of surprise, to the President that a journal of such standing as yours did not make sure of the facts before publishing a statement with regard to the proposed scheme of sewerage for Brisbane and those suburbs thereof that come within the Board's district, and in the circumstances I have to request, as directed, that you will be so good as to cause the truth to be published in your paper as freely as the errors were, and to add an apology for the latter.

This letter is written without prejudice.

I have the honour to be, Sir,

Your obedient servant,
GEO. JOHNSTON, Secretary.

[The "errors" to which reference is made in the above letter are difficult to find. In regard to paragraphs (3) and (4) our statements corresponded with the statements made by the members of the deputation. Paragraphs (5), (6), (7) and (8) contain expressions of opinion. We consider ourselves justified in dealing with any question of public interest in a critical manner, and can find no reason in the "Board's statement of fact" which would induce us to modify that opinion. It is curious that if, as is stated under paragraph (7), it is not permissible under the Act for the Board to select the irrigation method, the Board should have caused the whole district to be searched systematically for a suitable area for a sewage farm (see (5)). In regard to paragraph (1), the question turns on the interpretation of the term "neighbourhood." The Board appears to hold the opinion that six miles is a great distance. We cannot concur in this view. It thus appears that the errors are reduced to something contained in paragraph (2). We stated that the sewage would be discharged without preliminary treatment into the sea, if the Board's scheme were carried into effect. We sought for information in regard to preliminary treatment, but without suc-

cess. It was, therefore, not unreasonable to assume that an efficient treatment was not contemplated. We are delighted that the Board is compelled by Act of Parliament to remove all solids from the sewage, and to render the effluent "pure" and "innocuous" before it is discharged into deep water, and are anxious to learn what method the Board proposes to adopt.]

Medical Appointments.

Dr. A. L. B. Best has been appointed Public Vaccinator for South-eastern District at Heyfield, Victoria.

Dr. H. F. Wickens has been appointed Public Vaccinator for North-eastern District, at Tallangatta, Victoria.

Dr. G. O. Rigby has been appointed Medical Officer of Health for Kyneton, Carlsruhe, Lauriston, Edgecombe and Tylden Ridings, in the Kyneton Shire, Victoria.

Dr. John Anderson has been appointed Medical Officer of Health for the Trentham Riding, in the Kyneton Shire, Victoria.

Dr. H. F. Wickens has been appointed Medical Officer of Health for the Towong Shire, Victoria.

Dr. Basil Adams has been appointed Medical Tuberculosis Officer by the Wellington Hospital Board, New Zealand.

The following have been appointed medical officers to attend to the destitute poor and aborigines with the undermentioned districts in South Australia:—

Districts.	Medical Officers.
Alma Plains	R. McM. Glynn
Angaston	Frank G. Cowan
Balaklava	K. McEwin
Barossa (East Ward)	Eric H. Lewis
Barossa (West Ward)	Eric H. Lewis
Booleroo Centre Township and radius of 10 miles	W. M. Hunn
Carrieton Township and radius of 10 miles	Rex G. Plummer
Dalkey	J. A. Hanrahan
Gawler South	Eric H. Lewis
Hamilton	R. McM. Glynn
Kapunda Corporation and District	James Riddell
Maitland, Kilkerran, and Wauraltee, Hundreds of	Lionel O. Betts
Marion	A. P. E. O'Leary
Mitcham	A. H. Gault
Mobilong (ex aborigines)	C. N. Macquarie
Mount Barker	Malcolm L. Scott
Mount Crawford	Eric H. Lewis
Mudla Wirra North	R. McM. Glynn
Mudla Wirra South	J. R. Tobin
Munno Pao East	J. R. Tobin
North Rhine	Frank G. Cowan
Pinnaroo, Hundred of	M. Erichsen
Port Germein Township and radius of 10 miles (ex aborigines)	M. E. Goode
Rapid Bay	Sydney M. Verco
Redhill and radius of 12 miles	A. C. Wilton
Snowtown	Gilbert Brown
Stanley	O. W. Smith
Teatree Gully	J. V. McAree
Upper Wakefield	J. W. Yeatman
Warooka	W. H. Russell
Wilmington Township and radius of 15 miles (ex aborigines)	W. M. Pickering
Woodville	W. J. Gregerson
Yankalilla	Sydney M. Verco
Yatala North	W. A. Hunter

Dr. John Innes Stephen has been appointed Public Vaccinator at Whydham, Western Australia.

Dr. H. Owen Chapman has been appointed Medical Officer of Health at Warren, W.A.

The following appointments have been made at the Sydney hospital:—Dr. J. G. Edwards, hon. assistant skiagrapher; Dr. C. N. Paul, honorary assistant dermatologist; Dr. H. C. Adams, temporary honorary assistant physician.

The following has been elected a member of the South Australian Branch:—

Dr. Ralph E. Harris, St. Helens, Tasmania.

Diary for the Month.

Sept. 15.—New South Wales Branch B.M.A., Council Meeting.
Sept. 16.—Western Australian Branch, B.M.A., Branch Meeting.
Sept. 16.—Victorian Branch, B.M.A., Clinical Meeting.
Sept. 22.—Victorian Branch, B.M.A., Eye and Ear Section.
Sept. 25.—New South Wales Branch B.M.A., Election of Members of Federal Committee of B.M.A. in Australia.
Sept. 25.—New South Wales Branch B.M.A., Ordinary Meeting.
Sept. 25.—Melbourne Hospital, Clinical Meeting.
Sept. 29.—New South Wales Branch B.M.A., Committee Meeting.
Sept. 29.—Victorian Branch, B.M.A., Eye and Ear Section.
Sept. 30.—Victorian Branch, B.M.A., Council Meeting.
Oct. 1 and 2—New South Branch, B.M.A., Annual Meeting of the Delegates of the Affiliated Local Associations of Members with the Council.
Oct. 6.—New South Wales Branch, B.M.A., Council Meeting.
Oct. 9.—New South Wales Branch, B.M.A., Clinical Evening.
Oct. 20.—New South Wales Branch, B.M.A., Council Meeting.
Oct. 21.—Western Australian Branch, B.M.A., Branch Meeting.
Oct. 27.—New South Wales Branch, B.M.A., Committee Meetings.
Oct. 27.—Victorian Branch, B.M.A., Eye and Ear Section.
Oct. 30.—New South Wales Branch, B.M.A., Ordinary Meeting.

Warning Notices.

Medical Practitioners are requested to communicate with the Honorary Secretary of the Branch of the British Medical Association before applying for any appointments referred to below:—

Branch.	APPOINTMENTS.
QUEENSLAND. (Hon. Sec. B.M.A. Building, Adelaide Street, Brisbane).	Brisbane United F.S. Institute. F.S. Lodges at Longreach. F.S. Lodges at Warwick.
WESTERN AUSTRALIA. (Hon. Sec. 230 St. George's Terrace, Perth).	Swan District Medical Officer. All Contract Practice Appointments in W.A.
NEW SOUTH WALES. (Hon. Sec. 30-34 Elizabeth Street, Sydney).	Goulburn F.S. Association. F.S. Lodges at Casino. F.S. Lodges at Orange. F.S. Lodges at Braidwood. F.S. Lodges at Lithgow.
SOUTH AUSTRALIA. (Hon. Sec. 3 North Terrace, Adelaide).	The F.S. Medical Assoc. Incorp., Adelaide.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to the "Medical Journal of Australia" alone, unless the contrary be stated.

All communications should be addressed to "The Editor," "Medical Journal of Australia," B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.

The following periodicals are required by the Librarian of the New South Wales Branch of the British Medical Association to complete the series for binding. Members who have borrowed these journals are requested to return them as soon as possible:—

"Lancet," January 31, 1914.
"Lancet," February 7, 1914.